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Canada

THE EXTERIOR USE OF DECORATIVE IRONWORK IN OTTAWA ARCHITECTURE DURING THE LATTER HALF OF THE NINETEENTH CENTURY

Nancy Patricia Volesky

A Thesis

in

The Department

of

Art History

Presented in Partial Fulfillment of the Requirements
for the Degree of Master of Arts (M.A.) at Concordia University,
Montreal, Quebec, Canada.

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ABSTRACT

The Exterior Use of Decorative Ironwork in Ottawa Architecture During the Latter Half of the Nineteenth Century

Nancy Patricia Volesky

High Victorian architecture in Britain and France embraced eclecticism in architectural styles which provided a showcase for the skills of the ornamental ironworker with the creation of ornate entrance gates, decorative railings and elaborate roof cresting. As with most trends during the nineteenth century, Canada was quick to be influenced by the orientation of Europe and this highly decorative vogue in architecture was no exception.

The extent of this influence is illustrated by the construction of the Parliament Buildings in Ottawa during the 1860's designed by the English-trained architects Fuller and Jones. The completed buildings were so impressive that they affected not only local Ottawa and government architects but they helped to launch a national architectural style, in keeping with the confidence, aggressiveness and enthusiasm of a new nation.

This thesis discusses the exterior decorative use of cast and wrought iron (primarily cresting and finials) in mid-nineteenth century Ottawa architecture. The study begins in the 1860's (as no substantive information on local ironworkers is available before this date) and ends with the 1890's, the last years of the century. An examination of the iron industry in Ottawa has been attempted and includes a catalogue of ornamental ironworkers and foundries in operation during this period. Examples of Ottawa architecture ornamented with iron and constructed between 1860 and 1900 are also studied and an analysis of the cresting design has been undertaken.

The thesis also studies examples of Ottawa architecture ornamented with iron and constructed during this period. These buildings are divided into three types: Federal government buildings, public buildings and residential architecture.

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INTRODUCTION

Many people have been inspired by gazing up at the iron crosses set atop tall church spires which seem to disappear into the sky. This fascination with ornamental ironwork was not only limited to religious institutions, but many roofs of different structures have been decorated in such a manner, with a variety of designs limited only by the architect or ironworker's imagination.

This thesis discusses the use of ornamental ironwork, primarily crestwork and finials, which were popular elements of Western architecture during the latter half of the Nineteenth century. While few examples remain today, the practice of ornamenting the roofline with the handiwork of the ironworker was a prolific one, and as such, this architectural component played an important role in shaping the Canadian skyline.

This study will concentrate on the City of Ottawa, capital of the country, where a widespread use of this ornamentation can be found. Having a personal interest in architectural ironwork since 1980 through an involvement in the organization of an exhibition on Cast Iron Architecture in Montréal, I began my research. Upon examination of the literature, it became evident that historiography on this topic was virtually non-existent. Several books and monographs have been written on Ottawa architecture, but little or no consideration has been paid to the ornamental ironwork, which is after all, an integral part of the architecture to which it is attached. Furthermore, a study of the crestwork does not only have an impact on our knowledge and appreciation of the architecture, but it also provides important clues as to the industrial capabilities of the city during the latter part of the Nineteenth century.

The story of the iron industry in Ottawa is another area in which published material is sadly lacking. The most significant work so far in the Canadian context has been Eric Arthur and Thomas Ritchie's book, Iron, Cast and Wrought Iron in Canada from the Seventeenth Century to the Present, (1982) which provides a good overview of the history

of the production and use of iron in this country. However it is far too general to provide much specific information on the role of iron in the industrial history of Ottawa. This book briefly discusses cast iron facades as do two other texts which deal with Montréal architecture; Catalogue of a Montréal Cast Iron Exhibition, by Jean Belisle et al. (1980) and Facades en Fonte a Montréal: Aspects Technologique et Stylistique, by Renee Losier (1984).These works contain very few references to crestwork and do not help to shed any light on the Ottawa situation.

The purpose of this thesis is to attempt to fill at least part of the vacuum which exists concerning the knowledge of architectural ironwork in Ottawa during the latter half of the Nineteenth century. As very little information is known concerning the buildings themselves and the architects and ironworkers active during this period, most of the data has been gleaned from primary source material.

In the following paper, there are four chapters. The first examines the Ottawa iron industry, in order to establish that the capability to execute crestwork, finials and other ornamental ironwork existed locally. The mining and processing of iron ore in the Ottawa area is investigated as is the manufactured iron products side of the industry. An appendix of ironworkers active in Ottawa from 1861 - 1899 has been included.

The second Chapter moves on to analyze why there was a demand for ornamental ironwork of this type in Ottawa at this time, by exploring trends primarily in European architecture and looking at how these then influenced Canadian architecture of the day.

In Chapter three, a discussion of crestwork in the Ottawa context begins, dominated by the example of the Parliament Buildings, which upon completion embodied a new national architectural style. Only the ornamental ironwork for which detailed illustrations exist has been discussed. Chapter four continues the study of Ottawa cresting by examining further examples and undertaking a stylistic analysis of rooftop ornamental ironwork present on various types of buildings.

Because of the popular practice of using sub-contractors, it is often difficult to

determine who was responsible for actually creating the cresting design or its execution. The names of these practitioners did not often appear on architectural contracts. However, this in no way diminishes our enjoyment and appreciation of ~~the~~ creative work fashioned by an unknown craftsman.

CHAPTER I

INDUSTRIAL OTTAWA OF THE MID NINETEENTH CENTURY

Ottawa in the mid-Nineteenth century was still very much a provincial town even though it had undergone a rapid transformation from its days as a frontier village and was becoming a busy industrial place. During the late 1820's, settlers and immigrants were drawn to the area by the prospect of employment with the building of the Rideau Canal. The idea for the canal was first thought of in terms of insuring proper defense in case of a second American invasion after the war of 1812 and in 1816, a colonial military settlement was established in Perth, the strategy being that these trained men would be close to the American border and the Rideau Canal in the event of war.

However by the time the building of the canal started in 1826, the threat of invasion seemed secondary to the importance of providing a navigable waterway for steam vessels between the Ottawa River and Lake Ontario, as increased markets for lumber and other local goods were being realized. In addition, Ottawa was no longer so isolated from York (Toronto) and now important communication links were established between both the larger centres of Toronto and Montréal.

In the 1830's and 40's, Ottawa, known as Bytown, could have been called the town of "saws" and "outlaws". Its livelihood depended on the newly established timber trade which was not surprising as it was surrounded by one of the largest and most abundant pineries in eastern North America. Favoured by the excellent waterpower sites of the Chaudière and Rideau Falls, Ottawa was a natural location for sawmills and finishing factories which dotted the Ottawa River.

Attracted by the possibilities, immigrant and itinerant tradesmen and labourers were coming to seek their fortune in the lumber industry. These were often unruly times as there was a lack of law enforcement and many of these citizens lived by their own set of laws.

However, the population doubled from the 1840's to the 1850's as a result of the lumber boom and Bytown officially became a town. With it came a change of character and the beginnings of the Ottawa we know today began to take shape. In 1852, Bytown leased a number of hydraulic lots at the Chaudière Falls to a group of entrepreneurs mostly from the United States. These lumber barons, along with E.B. Eddy, whose company is still in operation today, established a sawmill industry and Ottawa was firmly entrenched as a major industrial centre.

Initially Great Britain had been the dominant timber trading partner with the Canadas. Britain had first imported her timber from the Baltic but when Napoleon issued his Berlin decree in 1807, closing the Baltic off to Britain, she had to look elsewhere for wooden building materials in order to maintain her naval supremacy. "To promote the growth of a forest industry in British North America and to create an alternate source of naval stores - the British Government instituted a tariff on the importation of foreign timber, known as the colonial preference. By 1820, Britain was importing nearly 360,000 loads of timber from the colonies."[1]

This preferential tariff was abolished in 1842 but the Ottawa area lumber trade was given an additional boost in 1854 when the reciprocity treaty between Canada and the United States was signed. This treaty considered planks and boards to be raw materials and therefore they could be shipped across the border free of duty. Many American markets opened up and by the 1870's, the United States became the prime buyer of the Ottawa pine.[2]

The success of these operations brought additional benefits to the Ottawa area. Land transportation routes were improved and, in fact, the sawmill industry was the prime motivator for the establishment of the first railway link between Ottawa-Hull and the St-Lawrence corridor in the 1850's.[3]

In 1855, Bytown became the city of Ottawa and the timber trade continued to form the economic base of the city. Secondary industries such as the manufacture of iron products were spawned as a result of the needs of the timber trade. Many of these were important and successful ventures but none ever rivaled the lumber industry on which they were dependent for business.

When the lumber trade failed to diversify and put into operation a program of seedling replacement, the lumber supply diminished in quality and quantity. As well, strong competition from Montréal, Toronto and the American markets eventually led to the decline of the timber trade in the Ottawa area at the end of the Nineteenth century.[4] As a result, the secondary industries whose success hinged upon lumbering declined with the mills, including the iron products industry. The days of Ottawa-Hull as a major industrial centre were over.

Luckily for the population, by the time of the timber trade's demise, the institutions of government were firmly installed in Ottawa and dominated the city as an employer as well as strongly influencing its character.[5] In 1859, Ottawa was selected as the seat of the Province of Canada and the Parliament Buildings were commissioned, changing the appearance of the city. After 1867 and Confederation, the business of government took on a national focus. An eager Ottawa labour force was readily available to assist the government with its task.

The following table, derived from information taken from an early Canadian census, illustrates the close association between the lumber and iron trades. It also shows the growing government force.[6]

Table showing Labour force in the Lumber Trade, Iron Products Industry and Government, 1860 - 1890

Occupations of the people	1860-61	1870-71	1880-81	1890-91
Blacksmiths	67	90	111	22
Foundrymen - sometimes incorporating machinists	8	20	14	9
Moulders	10	NA	NA	NA
Lumbermen	43	274	105	no specific figures available but only 4 saw-mills in operation
Government employees (civil servants)		310	626	no figures available but obviously growing

NA (No figures available)

THE IRON INDUSTRY IN OTTAWA

In discussing the iron industry in Ottawa, there are two sides which must be examined: the mining and processing part of the industry and the manufactured iron products end. Both were active in the Nineteenth century but how successful they were remains to be seen.

Mining and Processing in the Ottawa Area

Much of the descriptive literature of mid-Nineteenth century Ottawa comments on the richness of the iron ore beds in the Ottawa valley concentrated on the northside or Hull side of the Ottawa river "... and the lead and iron mines or beds, in close proximity (to Ottawa), offer inducements to the capitalists greater than mines of gold and silver possibly could do."[7] With all this potential, one would expect a very active mining industry but, curiously enough, only a few mines were established and none were successful in the long

run.

The first survey trip to the Hull mining area was conducted in 1801 by Philemon Wright, the founder of the lumber industry. He eventually formed the Hull Mining Co. in 1826 with the express purpose of developing an iron mine. It was worked to a very minor extent and it never really succeeded.[8]

In 1845, the deposit was re-discovered in an area known as the Forsyth Lot , but it was not until 10 years later in 1854 that any attempt was made to develop the mines. Messrs. Forsyth & Co., from Pittsburgh purchased the property and commenced to mine the ore, some of which was to be smelted (or processed into iron) in Pittsburgh. Their operations were on a small scale, and they had difficulty in transporting the products from the mine by barge to western Pennsylvania. The rest of the ore was loaded in boats on the Gatineau River, then taken to Ottawa and transferred up the Rideau Canal where the ore was re-loaded onto boats at Kingston which were destined for Cleveland and Pittsburgh. From there, it was sent to markets in the north central United States. The shipments did not even exceed 2,000 tons per annum. Production ended in 1858, owing to competition from new iron mines opening closer to the Rideau Canal (in Ontario), which meant the ore could be transported and sold more cheaply to the United States.[9]

However, a group of investors, known as the Canada Iron Mining and Manufacturing Company, was still convinced of the Forsyth mine's potential and acquired it in 1866. Forsyth & Co., retained a 1/6 interest in the nominal capital of the new company.[10] Under the name of The Canada Iron and Mining and Manufacturing Co. operations commenced in 1867 on the lot bordering the Gatineau river. A substantial stone smelting furnace was erected with engines, blast cylinders, sheds, charcoal kilns and shipping wharf - all the necessary works for the manufacturing of pig iron, at a production rate of 6 1/2 tons of pig iron per day.[11]

A small village grew up around the place which has since been known as Ironsides. The furnace was run for nearly two years during which time thousands of tons of metal was smelted. N.S. Blasdell who owned the Victoria foundry which operated during this time remarked on the high quality of the iron produced here.

> About the year 1868 we used in our furnace Forsyth ore and we have no hesitation in saying that it is the best iron we have ever used and we have certainly have had none so good since. We certainly have not been able to find any English or Scotch pig iron that has given us the same kind of satisfaction. We consider it the best iron for machine work and we regret the stoppage of the blast furnace at the mine and our consequent inability to obtain regular supplies.[12]

The company finding the business unprofitable ceased operations. There were many reasons for this, the principal one being competition from Scottish pig iron in the Montréal market. At that time, an inferior brand of iron, suitable for ordinary purposes, was manufactured in Scotland and exported to Montréal. It sold for $18.00 to $20.00 per ton, and the Canadian company could not even manufacture it for that price.

The Ottawa Citizen of September 25, 1972, published an article suggesting that the company was badly mismanaged both in its operations and finances. It cited the example of the furnace which was of poor construction and badly adapted to the use of charcoal fuel. An expert quoted in the article stated that the Canadian company used 200-235 bushels of charcoal for smelting a ton of ore while a Swedish manufacturer using the same sort of fuel never consumed more then 114 bushels. The loss was equivalent to $6.00 per ton.

When the company failed, it disposed of the Forsyth mine and smelting works to speculators. In 1870, a terrible fire devastated the Ottawa valley and swept over the Forsyth mine, destroying Ironsides, leaving only the ruins of the furnace. However, the surrounding scorched countryside revealed that lots 12 and 13 of the sixth range contained a

deposit of iron ore of extraordinary richness which was easily accessible.[13] A.H. Baldwin, a lumberman with a sawmill on Chaudière Island and foundry owner, purchased the land and mineral rights in 1871 and the mine opened under the name of Baldwin Mines. Baldwin along with other investors, also owned what used to be known as the Forsyth Mine. After the fire, Baldwin cleaned, rebuilt and reactivated the mine.

The principle ore that was mined there was black magnetic with a slight mixture of hematite which according to one newspaper article was the richest and most valuable of all iron ores. Their operations were limited to mining and selling the ore because of supposed lack of expertise in the business.[14]

The extracted ore from the mine is said to have been of excellent quality. An analysis of a sample undertaken by Professor Chandler of Boston in 1872 shows the following [15]

Analysis of Iron Ore from the Baldwin Mine	
Magnetic oxide of iron	93.82
Alumina	.72
Lime	.45
Sesqui Oxide Manganese	.12
Magnesia	.94
Silica	3.75
Sulphur	.11
Phosphorous	.08
	100.06
Equivalent to Metallic Iron	67.94
" " Sulphur	.11
" " Phosphorous	.03

The table shows a high percentage of magnetite or iron (93.82) and a low percentage of sulphur (.11), two qualities which make the ore good for smelting and easy to mould.

The ore was conveyed on wagons and sleighs in winter to the company's wharf in the Gatineau. From there, it went on barges by the Rideau Canal to Kingston where the coal was loaded onto ships. Some of the ore made its way to New York state but most of it went to the Redington and Adams' works in Cleveland. Once there, it was mixed with inferior ore and converted into pig iron.[16] The ore had an excellent reputation for being both strong and pure pig iron as it was neither "cold short" (brittle when cold) or "red short" (brittle when heated) and commanded a good price. "The ore from Mr. Baldwin's

mine sells at $3.00 per ton more than American ore at the Cleveland market. " [17]

Much of the Hull ore which had been smelted in the United States found its way back to Canada, stimulating an interest in the development of a solid iron ore processing industry in the Ottawa area. Several stories on this topic appeared in the newspapers, chiefly the Ottawa Citizen , and the following are examples from the articles printed.

> Take the Hull Iron mines as an illustration. Not one ton of this ore is smelted in Canada. Shipped to Cleveland or Ohio it is there manufactured into iron ... Pennsylvania and Ohio declare it the A1 of iron ore. It is satisfactory to see such good opinion of Canadian ore but unsatisfactory to see it leaving the country to be converted into iron only to be returned to us to be used in our foundries and car wheel manufactories.
>
> ...Of iron, we import 20,000 tons per year or to a value of one million and a half. Our markets now afford ample encouragement for the manufacture of pig iron, rails, car, rod and hoop iron and if manufacturing were only fairly commenced, the trade would grow and with its growth, other industries would be stimulated and influenced to the extent which would be of incalculable benefit to the whole country.[18]

There was often a nationalistic slant to these articles as shown in the following example:

> Is not this Hull mining enterprise worthy of encouragement? It is only by taking hold of such natural wealth resources and pushing their development, that we may hope to see the country making that progress which it ought to make.[19]

Even protectionism was promoted with a view towards developing the iron industries as witnessed by these two editorials:

> What then is wanted? ... If moderate protection were given to the manufacture of iron from ore, the ores would not go out of the country nor should we have to complain that our industrial interests were lagging behind. With proper encouragement from government and legislature there is no doubt our deposits of ore could be made a great source of natural wealth, the cursory of great industries and in time we should be the manufacturers not only for ourselves but for the

U.S.[20]

> We are pleased to see our contemporaries (Globe and Mail and Montréal News) waking up to the importance of the iron industry. But we would suggest that the shipment of ores from this country for manufacture in a foreign state indicates a waste of our natural resources and we would invite them to agitate for a moderate protection of iron so that the manufacture of iron in this country may be encouraged.[21]

Whether influenced by these newspaper editorials or not, the owner of the Baldwin mine, it seemed, had his own plans for expanding into manufacturing operations.

> It is the intention of the proprietor of Baldwin Mines to do this as soon as the necessary arrangements can be made. We understand the old furnace will be repaired and re-modelled for charcoal smelting and work may be resumed before the close of this year. It is probable that other furnaces adapted for coal and coal smelting will be erected. There can be little doubt that rolling mills, Bessemer steel railworks, car-wheel manufactories and other works will be established either at the mines or in this city. There is ample scope for these operations in the immense railways projected already in the course of construction. For pig iron-making alone, which could be manufactured at Hull with properly constructed furnaces at $20 per ton, sells for $40.00 per ton throughout the Dominion. Charcoal iron is now selling from L12 to L14 in England. In fact there is a great scarcity of strong, serviceable pig iron in England and there is no doubt Hull pig iron could be shipped there.[22]

However, the intention to process the ore at the Baldwin mine was short lived. While the facts are sketchy as all mining records for the period were lost in a fire at the government archives in Québec City, it seems that A.H. Baldwin was suddenly faced with a lawsuit over ownership of the mine and all mining operations ceased as a result. The mine was re-activated in the 1880's under the ownership of James MacLaren, a well known Ottawa lumber merchant. The ore was once again sent to U.S. markets and shipments in 1881 amounted to 18,000 tons. Even with all this activity, operations ceased in 1882, not to be continued until the turn of the century.[23]

In 1865, another iron ore bed was discovered in the Gatineau. In 1872, Edward Haycock, an Ottawa contractor who was involved in the construction of the Parliament

Buildings, bought the 300 acres of property at Templeton for $8,000.[24] In 1873, the ore was mined. Almost overnight bunkhouses, boarding houses, stores, offices, stables and a blacksmith shop sprang up and a town known as "Hematite" was born. The mine was almost pure hematite and yielded a good 65% high grade ore. Haycock built a 6 1/4 mile railway to the Gatineau river where horse-drawn cars carried the ore over wooden rails, some of which were built on trestles.

In that year, Haycock had his ore converted to steel in Nashua, Massachusetts and it was considered to be a success.[25] Soon after Haycock held a meeting for those interested in forming a joint stock company for the purposes of manufacturing Bessemer Steel. These businessmen discussed the cost of manufacturing steel from pig iron and then decided to send representatives to Pittsburgh and other cities where steel and iron were manufactured.[26]

The enterprise was called the Ottawa Iron and Steel Manufacturing Company and a newspaper report in 1874 stated that its purpose was to work the iron mines in Templeton, Hull, Ottawa and Québec.[27] This leads to the assumption that the company had more ambitious plans in mind than simply managing Haycock's mine. While it is difficult to ascertain whether any steel was manufactured at the Haycock mine, iron indeed was smelted there in 1874. In that year the Ottawa Citizen reported that the Haycock Iron and Steel Company found a most profitable market for its pig iron. It was all being shipped to England for the manufacturing of files.[28]

The plans of the Ottawa Iron and Steel Company never came to fruition as financial troubles forced the Haycock mine to be abandoned in late 1875. Several attempts were made to reactivate the mine and an article appearing in the Ottawa Citizen of November 9, 1877, mentioned that a firm known as the Ottawa Iron and Steel Company was making

arrangements to ship raw material to Pittsburgh for smelting into steel over there.[29] However, the venture was not successful as attempts to find new investors failed and the property was never worked again.

In the mid-1870's there continued to be articles written in the Ottawa newspaper addressing the problem of the lack of local iron manufacturing, indicating that the industry was not growing.

> What the country generally needs is an expansion of existing industrial interests and a greater diversity of employment for capital and workmen, and the Ottawa valley needs such diversity. There have no doubt been many difficulties in establishing and successfully carrying on the manufacturing of iron. We urge you to make full utilization of the production of iron."[30]

With all the resources of the area, it is difficult to understand why the iron ore mining and manufacturing industries had failed to develop as there were definitely markets (not only local) for the products. There seems to be several reasons for this. Firstly, by 1875, there was doubt about the quantity of ore available and it became apparent that the reserves of ore had been grossly overestimated in the initial surveys.[31]

Another major obstacle was that the location of mines were removed from the Ottawa River and Rideau Canal. The ore first had to be brought to the Gatineau River and then sent on from there. This was a time-consuming and expensive proposition (Fig.1). Thirdly, in order to sell the ore, prices had to be competitive. When the price of American pig iron dropped sharply in the latter 1870's, the Ottawa industry could not compete, particularly when most of the processing was done outside this country.[32]

Finally, the fortunes of the iron industry were also tied to the development of the railroad.[33] Between 1850 and 1875, during the railway boom, iron and steel were

required for railway construction but by the mid- 1870's iron and steel were in surplus and the railway "boom" had collapsed.[34]

But the Ottawa-Hull situation was not unique. Eric Arthur and Thomas Ritchie in their book which discusses iron manufacturing in Canada would have described this as "yet another casualty in the long history of failure in the Canadian iron industry."[35]

The Iron Products Industry (including foundries and ornamental ironworkers)

The main iron products industry in the Ottawa area developed as a support industry to the lumber trade, although there were ironworkers active before that time.

No Canadian town could have survived without its blacksmiths who along with providing the traditional horseshoes also made farm hardware, nails, chains, machinery parts, cooking utensils and other iron goods. These same craftsmen were also required from time to time to reveal a more artistic side by creating ornamental railings, church decorations, and other such adornments.

One could say that these men initially formed the backbone of the iron products industry and indeed many of them went to work in foundries, started foundries or found work as ornamental ironworkers in addition to performing regular blacksmith duties. The industry was never a large one and was always closely tied to the fortunes of the timber trade. The earliest iron foundries in Ottawa first appeared in the 1840's and 1850's. Lyman Perkins who had started out as a blacksmith working for Philemon Wright, established the Perkins foundry in 1840 which produced steam engines and boilers.[36]

In 1848, the T.M. Blasdell foundry was founded on Wellington Street and produced steam engines and mill iron. The Victoria Foundry run by N.S. Blasdell, (it is not clear whether he was related to T.M. Blasdell) was established in 1856 at the Chaudière

Falls. It became one of the biggest and best-known for its manufacturing of mill and other machinery. The Ottawa foundry operated from 1850-1873 as general blacksmiths. In addition they advertised casting in iron and brass and also ironwork for buildings. By the 1860's and 1870's more foundries had commenced operations in Ottawa. Most were situated near the sawmills because of proximity to their markets as well as obtaining the necessary water power to manufacture their goods. (Fig. 2).

Many of these foundries serviced the local lumber trade, but some also made agricultural implements as the Ottawa valley had an abundance of farm land. Even fewer made architectural castings of any sort. A catalogue of the iron foundries and ornamental ironworkers active in Ottawa from 1861-1899 is provided in Appendix I. It is interesting to note that many foundries closed and were re-opened under new management. These "managers" were always the same few skilled men going from one foundry to the next.

Four of these iron foundries will be discussed in some detail. The first is an example of a first-class Ottawa iron foundry operation. The second also serviced the mills. The last two were engaged in making mill machinery as well, but they are also the only two known to be involved in making some architectural castings. In addition, three ornamental ironworkers/blacksmiths will be examined briefly, the only ones found to be active during this entire period and for whom there exists some information.

Victoria Foundry

The Victoria Foundry was run by N.S. Blasdell and operated past the turn of the century. Although material discussing the industrial development of Ottawa in the Nineteenth century (except for the lumber trade) is practically non-existent, much descriptive literature often affords a comment or two about the Victoria Foundry and its success. The following is an excerpt from an Ottawa Citizen article describing the inside

of the foundry, illustrating the initiatives taken by N.S. Blasdell resulting in its excellent reputation.

> ... Here in the room the big object that attracts attention is the big Lathe, a gigantic machine weighing 18 tons, capable of turning the heaviest kinds of wheels and shafts used in milling. At the same time of our visit, a fly wheel for a sawmill gate, weighing 4,078 lbs, had just been cast and was about to be placed on the lathe to be finished. ...The foregoing which is a little more then a catalogue of the contents of this room will give the reader an idea of the capabilities of the Victoria Foundry for turning out the largest and heaviest kinds of mill and other machinery. Regarding all these we were not astonished to learn that the firm had received orders from all parts of America for supplying ironwork for mills and factories. Nova Scotia, New Brunswick, Ontario, Pennsylvania, New York and Michigan have become aware of the excellence and have procured lathe machines, saw gates etc. from the Victoria Foundry.

The Blacksmith's Shop

> ... Close to the wall adjoining the cupola, which is situated in the adjoining apartment is the bellows for supplying wind to the furnace. It is what is called a positive blower and is the only one of its kind used in Canada. The bellows ordinarily in use are required to make from 1,800 to 2,000 revolutions per minute to produce the necessary effect. But this will perform the same work with 400 revolutions.
>
> ...Specimens of wheel patterns can be seen here in bewildering variety, all of which were made on the premises by experienced workmen. Therefore, whenever any of the machinery in the adjacent mills gets broken or damaged, this foundry can in an incredibly short time supply the required castings. The Chaudière Mills which are the most extensive on this continent, are all furnished by this foundry.
>
> ...From this we were conducted to the planing shop which contains a wood planing machine designed and constructed by Messrs. Blasdell. This machine carried off the Prince of Wales gold medal from 8 competitors in the Montréal Exhibition of 1860. It is considered to be the finest of its kind in North America.[37]

<u>Baldwin Ironworks</u>

The Baldwin Ironworks began in 1869 run by A.H. Baldwin, the same Baldwin

who worked the mine in the Gatineau. The foundry's history is sketchy and no information is available between 1872 and 1887. In 1890, the foundry retained the name but changed ownership to Roe and Graham.[38] There is very little mention of it anywhere except strangely enough in the Dominion Illustrated of 1891 which devoted a whole issue of its magazine to Ottawa.[39] This periodical also highlighted some businesses including two foundries and it included a description of the operations of one ornamental ironworker (which will be examined later).

The feature on the Baldwin Ironworks outlined the services this foundry provided which were similar to those of its competitors but it did not mention that the company also made architectural castings. Evidence of their architectural work still exists today in the form of a cast iron column built into a façade. The column, visible downtown at the corner of Bank and Somerset streets, is very plain and non-descript, and is covered over by layers of paint. The only real proof of its provenance is the trademark at the bottom which reads Baldwin & Company. (Fig. 3). As this business did not readily advertise as some foundries did and there are no catalogues available, one must assume from the Dominion Illustrated article that the manufacture of cast iron columns was but a very minor part of their business.

> ... The splendid Foundry and headquarters of the firm are admirably located in Chaudière, where probably the best water power in Canada is available, and they comprise large wooden and stone buildings extending over 300 feet one way... Here is skillfully and promptly executed iron founding and mechanical work of various descriptions, a specialty being made of manufacturing to order water wheels, engines, mill machinery, gearing, electric car gearing, plant for street railways, and everything imaginable in these lines.
>
> ...The largest mills in operation throughout the Ottawa Valley have been fitted from this foundry. The trade extends from Halifax to British Columbia, the firm having placed water wheels on the Pacific Coast this year, having a desirable and enviable reputation throughout the Dominion. The visitor is amazed to see how smoothly and surely the several workmen and tradesmen combined their skill and judgement with the

> accurateness of improved machinery to produce huge iron wheels and complicated gearing, the immense log and drive wheels, for running great mills, as well as in a small way to make electric supplies and the requisites of hydraulic engineers. The premises are heated by steam and lighted by electricity and it might be mentioned that this firm does all steam fitting of all descriptions, and makes plumbers' supplies on a large scale. From the foregoing it will easily be seen that the enterprise of Messrs. Roe and Graham is thoroughly representative of this essentially iron age, and they are conducting it in a manner that reflects upon them the highest credit for energy, zeal and ability.[40]

Law Bros. and Company

The other foundry discussed in this special Dominion Illustrated issue was Law Bros. and Company. They manufactured items similar to those produced by the Baldwin and Blasdell foundries. Although the article provides yet another description of an iron foundry, it is worth reading because so little information from any source is available concerning this industry.

> ... This enterprise dates its inception to 1874, then under the name of Patterson & Law, but in 1888 assumed the present title Law Bros. The whole business is one of market progress and eminently well-deserved success. The premises are suitable and convenient, being 60x40 ft. in dimensions, and are fitted up throughout with all the latest improved appliances and machinery, essential for the manufacture of a special line of water wheels, heavy mill gearing and shafting, brass fittings, fine mouldings and mill fittings of all descriptions. A specialty is made of mill requisites, and during the past year Messrs. Law Bros. and Co. have supplied the McLaren Milling Co. (one of the biggest lumber operations) with heavy machinery; while as their trade covers the whole of Ontario, many other extensive contracts have been filled.[41]

Vulcan Foundry

The Vulcan Foundry established by Alexander Fleck in 1869 operated until the middle of this century, almost one hundred years. Although the descendants are around today, there is absolutely no documentation in existence relating to the foundry operations. Any information has been gleaned mostly from newspapers.

The Vulcan Foundry first began in Montréal and moved its operations to Ottawa in 1869.[42] (Fig. 4). It provided keen competition for other local foundries in the area of casting machinery. In 1875, Fleck successfully cast the Robertson steam engine which received first prize at the Provincial Exhibition.

> ... Mr. A. Fleck of the Vulcan Works received notification from the advisory board yesterday that the Robertson Steam engine which took first prize at the Provincial Exhibition has been selected to be sent to the Centennial Exhibition at Philadelphia.[43]

There was, however, another successful side to this foundry's business, that of manufacturing architectural castings. An advertisement in the Ottawa Citizen of Nov. 26, 1880 reveals not only this but also intimates that there must have been design catalogues available as well, which unfortunately remain to be discovered if they are in existence at all today. "To Architects - Architects and Builders would do well to call and see patterns and columns and ornamental castings for building at the Vulcan Ironworks, Wellington Street."[44]

While the designs presented in Fleck's catalogue are unavailable, there is evidence that the Vulcan Foundry exercised creativity and originality in the execution of its ornamental ironwork as witnessed by the following newspaper report. (Fig. 5).

> Passing Messrs. Garland and Mutchmore at the corner of Sparks and O'Connor Streets, one of the reporters noticed a handsome iron column intended for use in one of the windows. Who did this tasteful piece of work? Mr. Fleck's foundry on Wellington Street and several more were ready for placing in the building.
>
> ... Two fluted pillars intended for the centre of each of the two windows. These pilasters while massive and strong, being 15 feet in height and weighing 36 hundred each are tastefully ornamented with scroll work both at the base and capitals and will form a handsome addition to the front of the building.
>
> They will divide each window into 2 sections making as it

> were, four lights. Then there are 7 elegantly ornamented fluted columns, seventeen feet high, each weighing sixteen hundred and they are decorated with scrolls at their capitals, all nationally emblematic, respectively they have the rose, shamrock, thistle, maple leaf and beaver worked in wreath fashion with artistic taste.
>
> (The reporter then goes on to visit the foundry and learns how the decoration is made.)
>
> ... A pattern is carved in wood, a work of art itself. Then from these patterns moulds are cast in a composite metal into which again is cast the iron used in the decorative part of the construction. The moulds are polished as carefully as if they were silver. The ornaments are then fastened onto the columns with rivets and screws so securely that they almost appear as if they were carved from the pillars themselves.
>
> Then there are 7 other columns of lesser dimensions intended for the 2nd story. They are fourteen feet and weigh about 1/2 ton and are of plainer design though still elegant, reflecting credit on the designer who is an artist in the employ of Mr. Fleck.
>
> ... The work is most creditable to Mr. Fleck's establishment and is the first of its kind ever executed in Ottawa. A visitor from Montréal (knowledgeable in this area) said he had never seen the like in Montréal. That remark does honour to the manufacturer and proves that people need not go far to obtain such articles as Mr. Fleck intends to make that branch of his business a specialty.[45]

This last comment is especially important. While it is often difficult to tell which contractors were responsible for what work because of lack of documentation and the problem of sub-contracting, in many cases much construction/architectural work in Ottawa was done by firms outside the capital. This likely included decorative ironwork as well.

Relying mostly on photographs for evidence it seems that there was not a large market for cast iron façades. However, Fleck's foundry also received commissions for iron crestwork. According to Ottawa historian Michael Newton, the Vulcan Foundry created the highly decorative iron cresting adorning the Church of St. Alban the Martyr. While it is obvious that Fleck had developed expertise in these areas and attracted clients, it

did not mean he had cornered the Ottawa market for ornamental ironwork.

While Alexander Fleck's foundry enjoyed prosperity into the next century, the majority of the Ottawa iron foundries suffered a fate similar to that of the iron mines. Most of them ceased operations when the lumber mills shut down. These foundries had specifically serviced the timber trade by making mill machinery or had diversified only slightly to include train engines and other parts for railways. But as we have seen, the lumber industry fell victim to economic competition and problems of supply and quality. Only a very few in the timber trade made the transition into the pulp and paper business and survived. In addition, the railway "boom" was well over by the end of the Nineteenth century. Subsequently, very few of the subsidiary industries, such as the iron foundries, survived.

In 1899, nine foundries were in operation including the Victoria Foundry, the Vulcan Foundry, Law Bros. and Baldwin and Co. Many had diversified their operations to include stove making, hardware, plumbing supplies, etc. in order to stay in business as costs were continually on the rise and by this time employees were likely unionized. "Iron Moulders Union - An effort is being made to form an Iron Moulders' Union and a meeting for this purpose is to be held this week. There are about 25 iron moulders in the city and the object of the organization is to protect their interests."[46]

While there were relatively few foundries, even fewer of these specialized in ornamental ironwork. Only two offered architectural castings of any sort. There were three other firms working in the ornamental iron area and these were essentially blacksmith operations that offered this additional service.

The earliest record of such an establishment begins in 1866 when William Mitford opened his blacksmith shop at the corner of O'Connor and Wellington , directly across from the Parliament buildings. In 1869, Mitford moved to Hull right across from the E.B.

Eddy Lumbermill where presumably business was brisk. He remained at this location until 1871 and there is no trace of him after that date. Unfortunately there is no record of what ornamental ironwork he executed. Most probably, he was involved in carrying out some of the work for the Parliament buildings because of his location, near Parliament which was still under construction during the years he was in Ottawa. The City Directory of Ottawa of 1869-70, provides a short description of his services but again we have no clues to the actual work undertaken.[47]

The second ironworker appears in 1875 and there is no reference to him after that. He was not listed in the Ottawa directory but we know of this existence through an advertisement in the Ottawa Citizen of May 5, 1875 - The announcement read:

> J.A. Skinner, St. Paul St. (rear of St. Lawrence Hotel), plain and ornamental Ironworker, vault doors, iron shutters, railings, crestings - (the first time this word appears), and general iron work for buildings supplied. Coffee mills re-cut and warranted.

Once more, it is impossible to determine if Mr. Skinner was responsible for any of the cresting or other iron work that had begun to decorate many new Ottawa buildings during that time. Most buildings were awarded to contractors to build and they in turn sub-contracted to blacksmiths, painters, carpenters, etc., to do the work. Only the contractors are identified in most existing documentation and this gives no clue as to the original executor of the work.

Before examining the last ornamental ironworker for whom luckily we have more information, it is worth mentioning the Ottawa Marble and Granite Works owned by William Sommerville. This establishment specialized in supplying monuments and headstones but it also acted as an agent for Ives & Allan of Montréal, during the 1870's, who were responsible for making the magnificent wrought iron gates of the Parliament buildings. Sommerville advertised "Fencing for cemetery lots and private residences from

the celebrated makers Ives and Allan of Montréal".[48]

Since Ives and Allan's intricate work was available in Ottawa, this proves that the local market had direct competition at least from Montréal ironworkers. It is clear that Ives and Allen had a lot of expertise in ornamental ironwork, having been selected to produce the gates and railing for Parliament.

With such competition so close (facilitated by the improved modes of transportation, i.e. boats and trains) local foundries and smithys probably did not have an easy time of it. This also helps to explain why there were so few involved in the ornamental ironwork trade in the Ottawa area.

In the 1880's, advertisements appeared in the Ottawa city directory for Joseph R. Smith, ironworker. He referred to himself as a blacksmith, ornamental ironworker and iron fence manufacturer.[49] While these references do not provide much detail, the Dominion Illustrated of 1891 highlighted Smith in its description of Ottawa businesses providing an insight into his enterprise.

> In 1873, Smith opened the ironworks at 45 Besserer Street, a commodious place with an area of 25x100 feet, constantly employing a staff of skilled workmen, the entire business being carried on under the proprietor's personal supervision. Mr. Smith has shown great mechanical genius from his earliest youth, and has patented many inventions which are manufactured by him at the above premises, along with contractors' work, wrought iron mangers, as well as machinery of the most intricate description, a specialty being made of ornamental iron fencing, in which line he has built up a large trade and earned the highest reputation. Along with a large local trade, he keeps six travellers constantly on the road between New Brunswick in the east, and Battleford, N.W.T., in the west. Throughout this wide area the products of these works is largely distributed and much sought after.[50]

Because of this extensive coverage provided by the magazine, it is evident that Smith's business was very successful and indeed he continued his operations right through

the turn of the century. In May of 1892, Smith patented an industrial design of "an ornamental wrought ironwork suitable for fencing or for cresting for the tops of buildings, particularly should the same design be followed in cast iron."[51] (Fig. 6).

At first glance, the design does not seem to be overly complex or ornate, as for example in the case of the railings for the Parliament buildings. However, an exhaustive search of the patents office revealed that Smith was the only ironworker in Ottawa (foundry or otherwise) that had patented a design. Such a step at such a late date coupled with the coverage provided by the Dominion Illustrated indicates that Smith was indeed a leader in the ornamental iron field in Ottawa, disregarding the size of the market for this type of work in the area.

Given his profile and the fact that his work was being sold across Canada (by catalogue?) it is highly likely that his handiwork was displayed in Ottawa. Unfortunately, there is only evidence of his work on one building. The Ottawa Citizen of November 18, 1883 commented on St. Joseph's Church that was nearing completion of construction. The ironwork was by J.R. Smith.

There were only a handful of ironworkers like J.R. Smith in Ottawa who were active in the area of ornamental ironwork (for architectural purposes) and they included both blacksmiths and founders. While little material on these craftsmen exists, the available information examined does establish that the capability existed locally to execute the type of ironwork which will be discussed in a later chapter.

NOTES

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19. Article on "Processing of Iron Ore", Ottawa Citizen, November 24, 1871.

20. Article on "Processing of Ore", Ottawa Citizen, January 11, 1872.

21. Article on "Processing of Ore", Ottawa Citizen, February 5, 1872.

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CHAPTER II

TRENDS IN NINETEENTH CENTURY EUROPEAN ARCHITECTURE AND THE INFLUENCES ON CANADIAN ARCHITECTURE

THE REVIVALS IN NINETEENTH CENTURY BRITISH ARCHITECTURE

European architecture in the Nineteenth century was characterized by the "Revivals", or the imitation of past styles from the Classical, Medieval and Renaissance periods. In England, the revival of Italianate and Greek styles (termed classical) as well as the Gothic style, was reshaping the architecture of both city and country. The preceding Georgian era had witnessed the Neo-Classical movement with the continued influence of Palladian architecture and the re-appearance of Gothic, as illustrated by Horace Walpole's Strawberry Hill (c. 1750-70). This pre-occupation with past styles can in part be attributed to the knowledge derived from archaeological expeditions in Greece and Rome, undertaken during that period and to publications such as John Carter's (1748-1817) Views of Ancient Buildings in England (1786-93), a book which illustrated examples of medieval English architecture which many had never seen before.

The Eighteenth century also gave rise to another movement affecting both landscape and architecture. Known as the Picturesque, it sought to bring landscape design closer to nature by restoring and preserving its inherent visual qualities such as variety, colour and texture. Derived from the Italian word pittoresco, meaning the style of the painter, it was modelled after the landscape paintings of Claude Lorrain (1600-82) and Salvatore Rosa (1615-73). The goal of the Picturesque was to capture the essence of true nature, rather than presenting landscape in a formal and contrived way which had been the previous practice. Essentially, the Picturesque view of nature as disordered and romantic was in direct opposition with the Eighteenth century classical view of nature as being rational and ordered.[1]

Within the theory of the Picturesque, architecture played a secondary role in that it was meant to blend in and be in harmony both visually and emotionally with the character of its natural surroundings.[2] Architects adopted certain principles of the Picturesque such as the use of irregular forms, the play of light and shadows, as well as a concern for the total effect or atmosphere created by a scene comprised of both landscape and architecture. The end result was never "an abstract exercise in form, but was a well calculated composition, intending to seem the effect of chance."[3]

In Claude Lorrain's paintings, the artist has painted classical ruins, castles and villages. Georgian architects also relied on a varied repertory to create the desired effect of weather, time and accident. These included the use of classical, castellated, or Gothic architecture. The purpose was not to emulate these past styles, but rather, by borrowing a few stylistic details, the architect should suggest to the viewer a specific style. "The principles of congruity and the creation of interesting visual effects replaced standards of architectural correctness based on classical precepts".[4] The intention of evoking the viewer's emotions justified an eclectic approach to style and many different building types could be called upon, determined by an eye well attuned to the Picturesque effect.[5] This provided the architect with a certain amount of freedom limited only by his imagination and his patron's tastes. The notion of "Imagination" was the essence of the Romantic movement which pervaded the arts from the late Eighteenth century through the Nineteenth.[6]

The architect John Nash (1752-1835), who is one of the more noteworthy architects of the Picturesque movement, designed buildings embodying the Picturesque spirit in a variety of styles: classical at Rockingham, Ireland (1810), castellated Gothic at Ravensworth Castle (1808), and the Italian villa style at Cronkhill (1802). (Fig. 7.).

Nash's villa (based on the Italian vernacular) was important for several reasons. It was the first example of the Italian villa style in England and it proved that this type of architecture fit in well with the vocabulary of the Picturesque.

In addition to the appearance of the Italian villa, there was a rediscovery of the cottage as an architectural component of the Picturesque landscape. The "cottage ornee" (usually smaller than a villa) was built for gentlemen who wished to surround themselves with an atmosphere of rural ease. There were three main sources of inspiration for the cottage: the primitive hut, the ancient vernacular of the English countryside and the Italian vernacular.[7] Tudor parsonages were also used successfully,[8] and in a publication dated 1798, entitled Essay on British Cottage Architecture, James Malton suggested that old English cottages with country churches are "most pleasing and they are ornaments of art that can be introduced to embellish rural nature".[9]

Ornamentation was part of the vocabulary of the Picturesque, particularly as it helped in creating interesting and irregular effects with light and shadow. Verandahs became popular and were often covered with treillage, bringing nature that much closer to man. French windows also became popular. While letting more light in they could be opened directly onto the garden or terrace, with nature at one's doorstep. Decorated iron window guards, ornamental balconies[10] and possibly iron cresting helped to break the monotony of the façade and roofline.

The repertory of the Picturesque was influenced by themes found in travel books, which provided many with a first time look at civilian and domestic architecture from Switzerland, Italy, Egypt, India, etc.[11] Many of these ideas were reflected back in examples of cottage and village architecture presented in the ever increasing English pattern books of the day. Those from the late Eighteenth century still showed a strong inclination

towards classicism, but by the 1800's the influence of Picturesque aesthetics became more prevalent.[12]

By its nature, Picturesque architecture was meant for the country, although the turn of the century brought Picturesque values to town, as witnessed by John Nash's townhouses and park at Regent's Park and Street in London (1811 onwards). Domestic pattern books changed reflecting this shift. John Claudius Loudon's An Encyclopaedia of Cottage, Farm and Villa Architecture (1833) reveals an absence of landscape settings for the architectural compositions. The designs remain eclectic and although the philosophy of the Picturesque is evident, the once intimate relationship with architecture has broken down.[13] Instead there is a tendency away from the subtleties of early Picturesque design towards a greater sense of irregularity of wallplanes, agitated skylines (often characterized by ornamental ironwork) and richer and more abundant decorative detail. Perhaps in the case of town architecture, the increase in the use of ornamentation compensated for the lack of sufficient landscape with which to complement the design. The most significant legacy of the Picturesque was its eclectic approach to style and the revival of the Gothic vocabulary.[14]

The Neo-classical tradition split itself after Waterloo (1815) to reflect "the changing mentality of England with its burgeoning bourgeois society and its aristocratic leanings.[15] The result was a trend towards revivals in both Greek and Gothic architecture. In addition, there was also an Italian Renaissance revival led primarily by the architect Charles Barry (1795-1860). With the increasing availability of architectural and archaeological books revealing accurate descriptions of ancient Greece and medieval Britain, English architects scorned the production of the earlier Georgian age for its unscholarly approach and limited themselves to a fairly strict re-interpretation of architectural precedents in the early Nineteenth century. This "conscious antiquarianism" pervaded into all areas of

architectural life.[16]

During this period, an expansion in the population of towns took place and with it came the need for a variety of public, semi-public and private buildings.[17] The Greek Revival style was used to build such grand public buildings as the British Museum (1827-47) by Robert Smirke (1780-1867) (Fig. 7), The Taylorian Institute at Oxford (1839) by Charles Robert Cockerell (1788-1863) and the Grange Park residence (1804) by William Wilkins (1778-1839).

As an alternative to the Greek Revival, the Italian Renaissance style was introduced by Charles Barry. His palazzo type designs seemed particularly well suited to meet the expectations of rich patrons, who wished the architecture to reflect their wealth, stability and power. Consequently, Barry used the Italian palazzo design for two private clubs in London, the Travellers' (1830) and the Reform (1837) (Fig. 8.) This style was suitable for the dignity and prestige that clubs, banks and insurance companies wished to express and it developed into a popular formula which was used until the twentieth century.

In 1836, Barry won the most important competition of his career - to build the new Parliament Buildings in London (Fig. 9). The competition had stipulated that the building be in either the Gothic or Elizabethan style. The reasons for this are likely that it would be easier to incorporate existing medieval fragments (remaining after the fire which burned Parliament in 1834) into such a style and the building's purpose required a design as essentially English as Gothic was thought to be. With this new Parliament commission, the Gothic Revival style had "arrived" and began surpassing both the Greek and Italian styles in public architecture. It was not unusual that Barry was a versatile architect, having designed buildings in both Gothic Revival and Italian Renaissance, because many of the other architects previously mentioned for their contribution to the Greek Revival also

"cultivated Gothic as a type of second language before 1830."[18]

Curiously enough, it was a combination of passionate religious convictions and a program of church building which helped drive the Gothic Revival to the forefront. In 1818, an act was passed to allow for many new churches to be build in London to halt the spread of atheism and free thinking.[19] Most of the churches, albeit simple, were built in the Gothic style because it was less expensive than Grecian, as no stone porticos were needed. For the most part they tended to be cheap."Carpenters Gothic", plain brick with the stone ornaments, but Gothic nonetheless.

The 1830's saw the rise of a new fervor within the Anglican Church known as the "Oxford Movement". Basically, the Oxford doctrine advocated the study and respect of medieval archeology and accepted Gothic architecture as models for emulation, not for their beauty but for for their ecclesiological virtues.[20] "Ecclesiology" became a new catchword defining a pseudo-science of church building. "Ecclesiologists" researched medieval church practices and church architecture, developing a dogma which dictated new regulations for worship and which insisted that church architecture be in correct Gothic style, being that of the thirteenth and fourteenth centuries in England.

The usual program of church design was completely changed after 1840 by the Ecclesiologists who spread their influence through the many pamphlets they published.[21] Gone was the large democratic auditorium style of the Protestant church, visible since the days of Christopher Wren (1632-1723) and in its place the Ecclesiologists borrowed elements from medieval English churches such as side chapels, chancels and aisles, which would accommodate the elaborate rituals of the services they now planned to hold .[22] In 1844, the publication, The Ecclesiologist decided that the preferred Gothic style for churches was the "Decorated" of the fourteenth century, also known as "Middle

Pointed".[23] It is evident that this new philosophy was concerned only with structural methods and building materials as matters of ethical as opposed to mechanical or visual importance. While the Ecclesiologist movement encouraged a proliferation of Gothic church architecture across England, their doctrine also advocated the avoidance of materials and methods not known in the medieval period and as a result, church architecture was divorced from the new structural developments of the Nineteenth century for a while.[24] "Conscious Medievalism" was a passion not only of the Anglican Church, but it also became a cause championed by the architect Augustus Welby Northmore Pugin (1812-1825), who was a Catholic convert. Pugin believed that Gothic architecture evoked Christian values and morality associated with the middle ages in England. He published several books expounding these views including Contrasts; or a Parallel between the Noble Edifices of the Fourteenth and Fifteenth Centuries and Similar Buildings of the Present Day (1836) where he contrasted contemporary architecture with that of the Gothic period and attacked the principles behind and methods of construction of early Nineteenth century architecture. With Pugin's publications and the fervor caused by the Cambridge Camden Society (1839) or the Ecclesiological Society (1846) as it was later called, interest in the Gothic style moved from merely Picturesque to a serious sentiment for Gothic as a national style.[25]

While this movement was primarily associated with church building and church restoration, the Gothic influence was felt in the design of castellated country houses (Fig. 10) and in certain public buildings and colleges, culminating with the design specifications for the construction of the new Houses of Parliament.

By the 1850's, "Victorians seemed to realize that archeology without some use of the imagination or originality of treatment could be as uninteresting when medieval as classical."[26] Even the Ecclesiologists grew less rigid in their stringent rules for church

architecture and recommended the use of brick, not only stone, for construction. They also referred to foreign models for inspiration.[27] The Gothic Revival movement became less nationalistic and more open to interpretation. The use of foreign examples as sources of inspiration was sanctioned by the writings of the influential John Ruskin, (1819-1900) an art and architecture philosopher and critic. Ruskin in his book, The Seven Lamps of Architecture, (1849) embraced several medieval styles such as Pisan Romanesque, Florentine and Venetian Gothic and Earliest English Decorated,[28] (which had long been advocated by the Ecclesiologists),

The challenge offered by this new freedom in Gothic Revival design was taken up earnestly by two architects. William Butterfield (1814-1900) was the darling of the Camden Society and as a follower of their beliefs, he regarded the Gothic style as a vehicle for honest building.[29] More importantly, Butterfield went further to suggest that Gothic must also be part of the present age and incorporated into a modern style.[30] To Butterfield, the highest tribute that could be paid was to build Gothic well. This meant that new materials, such as "marble, and glazed brick, minton tiles and terra-cotta could all be pressed into service and made to form a bold scheme of decoration, iconography and symbolism with lasting power".[31] True to his word, Butterfield built All Saints Church in London (1849-59) which, while conforming to the structural rules of the Ecclesiologists, it was also highly original in its use of multi-patterned brickwork. (Fig. 11),

Another architect, Sir George Gilbert Scott (1811-78) was a fervent practitioner of the Gothic style but, like Butterfield, he sought to express Gothic with some imagination. Scott urged that the revival of Gothic not be "copyistic" but should allow for a gradual development of original expression.[32] In 1857, Scott published his Remarks on Secular and Domestic Architecture, Present and Future, advocating the use of the Gothic style for other than church architecture. Scott's ideas were displayed in the construction of the St.

Pancras Hotel in London (1868) (Fig. 10), a dramatic Gothic Revival structure which drew on Italian Gothic and other medieval influences. The tendency towards a broader interpretation of the chosen models and increasing influences of continental architecture after the 1840's, was not limited to the Gothic mode.

Paddington Station and Hotel constructed in 1852-3 by the Architects Philip and Philip Charles Hardwick (Fig. 12) was essentially of the Renaissance style but it incorporated two rather unique features: A mansard roof and pavilions. These two elements were French in origin and the mansard roof dates back to the seventeenth century. This type of architecture became known as Second Empire and was influenced by the construction of the new Louvre in Paris during the 1850's. Second Empire grew increasingly prominent and it was selected for the War Office at Whitehall in 1857, designed by Henry B. Garling. (Fig. 12).

An increasing freedom in architecture allowed the architect to not only create freely within one general style, but it also permitted him to blend a range of styles or elements within a single structure. Also termed the "herbs and spice" approach by Art Historian Henry Russell Hitchcock,[33] it led to High Victorian architecture, which dominated Britain from the 1850's to almost the end of the century. As imagination had been the catchword of the Picturesque, so it was again with High Victorian architecture. Now limited only by their imaginations, architects sought to create the most visually striking structures wherever possible. They attempted to make their buildings Picturesque, in the sense of creating a bold impression, exploiting all the stylistic avenues and influences open to them. The Leeds Town Hall (1853) by Cuthbert Broderick and the Law Courts (1866) by George Edmund Street are both arresting examples of this new trend. (Figs. 13 and 14). The Leeds Town Hall (Fig. 13) is a large classical design with giant Corinthian columns surrounding the building. The roof however holds a domed tower which denotes Italian

Renaissance or Baroque heritage. By contrast, the Law Courts (Fig. 14) are in a Gothic Revival style but with its many towers, turrets, exterior ornamentation (cresting) and polychrome, it becomes a modern day fanciful Gothic, one which is highly picturesque. Originally, the theory of the Picturesque dealt with landscape and later its relationship to architecture. The purpose was to combine both in creating a memorable experience for the viewer. By mid-century, the Victorians were once again reverting to the Picturesque tenet of creating visual excitement in architecture, a reaction perhaps to the preceding period of restrained antiquarianism. This new "Picturesque" expression was not associated with landscape except perhaps still in villa or country home architecture. Instead, a lack of space in the cities forced architects to create a more dramatic composition without the assistance of a natural setting.

In order to create this sense of Picturesque, Victorians became increasingly conscious of the skyline and how the play of light and shadow could heighten the effect.[34] "The skyline potentiality of Gothic was one of its great strengths and so the Classicists had to introduce the Mansard roofs as their answer to the Goths."[35] Both the Law Courts and Paddington Station Hotel are examples of how a dramatic roofline adds interest to a structure.

From the 1860's onwards, architects were selecting from various styles such as Gothic, Classical, Renaissance, European Medieval and Baroque. The option of blending styles or stylistic elements, greatly assisted in achieving a high impact visual statement. The resulting architecture has been termed "Picturesque Eclecticism"[36], a connotation which expresses the spirit of the old Picturesque and reflects the new found freedom of stylistic expression.

THE REVIVALS IN NINETEENTH CENTURY FRENCH ARCHITECTURE

Generally, French architecture paralleled English trends for most of the Nineteenth century. The turn of the century found French architects continuing to practice in the Classical style, constructing such churches as the Grand Chapel of Louis XVIII at Dreux (1816-22). But Gothic Revival became a serious alternative for church architecture as witnessed by the construction of the impressive Ste. Clotilde in Paris (1846-57) designed by Franz Christian Gau (1790-1853). (Fig. 17).

During the reign of Napoleon III, the emperor undertook a program of building restoration and struck a committee known as the Commission de Monuments Historiques to be in charge of these projects. Many of the restorations were performed on medieval buildings, but instead of recreating them exactly as they had been, some artistic license was taken (technique and material) and many of the buildings are actually excellent examples of Gothic Revival architecture. (Fig. 13). Among the secular architecture restored, was the Chateau de Pierrefonds (Fig. 15). Napoleon III appointed Eugène Emmanuel Viollet-Le-Duc (1814-1879) to head the project. Viollet-Le-Duc was not only an architect but he wrote widely on architectural theory, much like Ruskin in England and he was also a scholar of the middle ages. While Viollet-Le-Duc was an admirer of medieval architecture, he did not believe in reproducing it faithfully (unlike the Ecclesiologists) and his theories stated that architecture should be an appropriate response to the prevailing cultural, social, economic and geographic condition of the times.[37]

Napoleon III also undertook a vast public works renovation program and this initiative led to the emergence of the Second Empire style, characterized by a Renaissance or Italian influenced façade, a mansard roof and the use of pavilions, which often accentuated frequent projecting and necessary planes of the wall surface. This style was

officially added to the French architectural repertory with the construction of the new Louvre by Louis Visconti and Hector-Martin Lefuel (1852-57) (Figs. 16&17) and other buildings followed suit.

ORNAMENTATION AND THE USE OF CRESTING

When Charles Barry won the competition for the Houses of Parliament in 1835, Pugin was given the responsibility for designing all ornamental details on both the interior and exterior of the Buildings. Pugin's obsession with "conscious medievalism" resulted in training craftsmen in the medieval techniques used in creating ornaments from every possible material and consequently these skilled men were then available to furnish high standards of craftsmanship for other Gothic Revival projects.[38]

Ruskin, like Pugin, also believed in the importance of ornamenting architecture and wrote extensively on this topic in The Seven Lamps of Architecture (1849) and in The Stones of Venice (1851-53). He said of ornamentation that "architecture distinguished from mere building is not a matter of design, but of ornament."[39] As theorists pursued their ideas on decoration (Pugin published Floriated Ornament in 1849), Victorians became increasingly enchanted with ornamentation in architecture. George Gilbert Scott remarked that "the great principle of architecture was to ornament."[40]

By the 1840's, commercial architecture began to display some pretension and embellishment in keeping with the growing success of commercial establishments in contrast to the former restraint of the Georgians.[41] The rural estates of the new industrialists, lavishly decorated, exhibited their riches for all to see. Even the aristocracy, whose influence was slowly diminishing by the emergence of a wealthy middle class, often built country mansions which were rather ostentatious in their use of ornament.[42] On a

less grand scale, emphasis was placed on ornament as a way of importing a stylistic character such as Gothic, to a building whose simple architectural design was dictated by financial constraints.

Prominent place was also given to ornament as a way of suggesting diverse stylistic origins[43] within a single structure, such as the Houses of Parliament which combined classical regularity with Gothic character, assisted by Pugin's ornamental details. This practice was no doubt a factor in the emergence of "Picturesque Eclecticism" popular during the High Victorian era. Ornamental features from the past were preferred and they included: rounded and Lancet windows, carved foliage adornments and other designs and decorative accents in entrances, at storey divisions, on crowning elements and the roofline.[44]

Ornamentation was also achieved by the use of different materials creating a pattern on the wall surface. This practice dated back to the middle ages.[45] The cancellation of a tax on bricks in 1850 encouraged innovations in their use and the bold polychromy of Butterfield (in his All Saints Church and Street in the Law Courts) was the result.[46]

The Nineteenth century was marked by the emergence of new building materials and this included the use of iron for structural purposes. While the subject of cast iron architecture is beyond the scope of this thesis, a brief examination of its relation to ornamentation in the Victorian context will be undertaken.

Iron was seen as a material to be used for vertical supports, beams and occasionally façades. The cast iron column, due to its fire resistant qualities as well as cheapness and simplicity of manufacture, made it fairly popular. Cast iron structures were first built as warehouses, they then appeared in railway station architecture and were also used for the

construction of greenhouses, the precursor to the Crystal Palace of 1851, designed by Sir Joseph Paxton (1801-65).

Ironically, one of iron's greatest qualities, the fact that it could be made to resemble other building materials and could be ornamented in any way quickly by a mould process as opposed to by a craftsman, (thereby having the capability of being reproduced easily and cheaply) was the subject of great debate. Not surprisingly, Pugin condemned the use of cast iron in church architecture both structurally and ornamentally.[47] (Fig. 18). Ruskin was equally opposed to the use of iron, "True architecture does not admit iron as a constructive material", (although he did allow it to be used for nails and rivets)[48]. As well, he commented on what he termed architectural deceits and among these were "the use of cast or machine made ornaments of any kind."[49] The imitative qualities of cast iron which proved so attractive were also criticized by Ruskin. "If you can't afford to use the best materials, use a lower grade of "pure" material such as wood"[50] and even more strongly, "the moment where iron in the least degree takes the place of stone, the building ceases to be true architecture."[51]

However not all theoreticians or architects held similar views. Charles Cockerell in his address to the Royal Academy in 1852 stated that it was an error to suppose that iron was incapable or unworthy of decoration.[52] As the use of cast iron increased, manufacturers became aware of the importance of ornament and design. This development is illustrated by the appointment of Alfred Stevens (1817-75), one of England's foremost sculptors, to the position of Director of Design at Hoole and Robson's Green Lane Ironworks in Sheffield.[53] By popular demand, most cast iron designs were based on styles from the past, but one architect, Sir Matthew Digby Wyatt (1820-77) argued that this should be otherwise. Wyatt's publication of 1852, entitled Metalwork and its Artistic Design, urged that as a relatively new material, cast iron should inspire innovative designs

unrelated to any former style. He attacked "copyism" and promoted progressive development in the design of iron ornament.[54]

In French architectural circles, the topic of cast iron architecture was also being discussed. Viollet-Le-Duc wrote extensively on this theme. Echoing Ruskin, he felt that materials should not imitate other building materials. " ... il faut ..., que la pierre paraisse bien être de la pierre, le fer du fer, le bois, du bois." [55]. However, Viollet-Le-Duc welcomed the spirit of the times, the état social of the industrial age and its challenges. He believed that iron had a place in architecture and, like Wyatt, Viollet-Let-Duc thought that new shapes should be explored. Architects are encouraged to look for forms which suit the qualities of iron and its manufacture in private houses, floors, wall panels and staircases."[56]

The High Victorian period marked a proliferation of crestwork, stemming from: an increasing trend towards ornamentation, the decorative potential of the varied roof-lines provided by the Gothic Revival and Second Empire styles and by the publication of pattern books from which to draw inspiration. Cresting adorned the "cottage orné", churches, public buildings, hotels, the Parliament Buildings and other architecture. (Figs. 9, 10, 12, 13b, 14, 15, 17 and 19).

English and French theorists did not take issue with the use of iron cresting (as they had with structural iron) and there is evidence of very little material devoted to this subject. Among his many projects, Viollet-Le-Duc undertook to write a dictionary of architecture (which conveniently provided a platform for his theories) and in it he explained the development of architectural styles, practices, materials, decoration, etc. It seems he was among the first to shed light on the history of cresting, which according to his Dictionnaire Raisonné de l'Architecture francaise du XI[e] au XVI[e] siècle, dates back to the middle ages;

more precisely the "Gothic" period. The following paragraphs paraphrase some of Viollet-Le-Duc's theories on cresting.[57]

Initially, cresting was developed with a structural purpose in mind as opposed to simply being an ornamental element. Many early buildings did not use ridge poles in the construction of the roofs and therefore something was needed to hold the rafters together. Whatever it was, it had to be heavy enough to withstand the wind and wide enough not to let the rain and snow pass between the rafters. One of the earliest solutions to this problem is shown in the example of the thatched huts which often had mud placed all along the ridge of the roof, into which foliage was planted to secure the mud and to prevent it from disintegrating in the rain. (Fig. 20).

Stone cresting was later used for the same purpose, but instead of placing crude stones on the roof top, imagination and creativity stepped in somewhere along the line and stone crestwork appeared with decorations of simple designs: triangles, circles, half circles and key hole motifs. Square patterns also existed. In some areas, this type of cresting was not only limited to the centre of the roof but also extended to the sides. (Fig. 20). Subsequent practice found decorative cresting on the summit of buttresses such as on the Church of Notre-Dame in Dijon, which dates back to the beginning of the thirteenth century. This is a particularly intriguing example as the cresting takes the form of crude animals, bordered by leaves. Viollet-Le-Duc stated that during the fourteenth and fifteenth centuries this type of cresting was often capped by a foliage motif. (Fig. 21).

On the roofs which were made of metal or slate, metal cresting was almost always used, a common custom since the thirteenth century, most likely due to the fact that metal cresting placed at the top of the rafters assured their stability.

Towards the middle of the thirteenth century, it seems that simple metal cresting took on greater ornamental importance. Depictions of indigenous flora and foliage became popular. As these imposing designs were quite tall, they required the use of a metal framework to support the cresting. No longer could the cresting be simply placed right on top of the roof. Metal supports were placed on the summit of the roof, the bottoms of which formed an inverted V and each side of the V was attached to one of the rafters. (Fig. 22). The cresting was then soldered onto these metal supports and all this weight helped to stabilize the structure. The approach to securing the cresting to the roof was still used well into the Nineteenth century. Viollet-Le-Duc cautioned in his dictionary about the importance of solid supports. The designs were to be executed in such a way that the iron supports would be simple and solid at the same time, because if these supports were faulty, the whole cresting would collapse.

The architects of the fifteenth century used a different system of support and style for the cresting. They composed a design which looked much like a balustrade or railing with a horizontal rod crowning the top of the design. An example of this was used at the Cathedral of Rouen. (Fig. 23). During that period, it was also the fashion to incorporate into the cresting coats of arms and numbers, as well as other symbols. This did not appeal to Viollet-Le-Duc's sense of good cresting. He found such a balustrade composition did not succeed in creating the effect that cresting should have -- that of standing out against the sky. The designs were too fine and the details far too small and therefore all was lost in the distance from where it was normally seen.

Viollet-Le-Duc provided suggestions for appropriate cresting ornamentation in his Dictionnaire Raisonné. He felt that designs which were large, well-pronounced, simple and easy to understand, produced the most pleasing effect. To insure the cresting would be read well, the design must be repeated many times. Wisely, he also cautioned that only

experience could indicate the proper dimensions and proportions that cresting should have in order to stand out against the sky, as often patterns and heights could be deceiving. He offered the would-be designer some hints.

For cresting which was perforated, one had to consider the space which it would occupy as well as the complexity of the ornamentation which could also mark the effect. If the cresting had to cover only a short distance, one should choose, as with a balustrade; a tight or closely woven design in which the pattern or symbols are quite vertical. If, on the other hand, the cresting was meant to stretch for a distance, it would be necessary to extend and widen the design. Much of the cresting which existed in the twelfth century was similar in style, according to Viollet-Le-Duc, to that which decorated many of the present day Nineteenth century shrines. (Fig. 23). While he praised these, he also acknowledged that the period of the Renaissance produced some excellent cresting as well.

While no English writer of the Nineteenth century discussed the design of iron cresting to the extent of Viollet-Le-Duc, Ruskin wrote extensively on the ornamentation of buildings and some of his remarks can be applied to the subject of crestwork. Like Viollet-Le-Duc, Ruskin believed that "ornament should be boldly wrought where it is distant from the eye, so that the spectator may know exactly what it is and what it is worth".[58] He goes on to add that "if ornament does its duty then the points of light and shade will tell in the general effect. And if ornament has not distant decorative power, we will only be chagrined."[59]

Ruskin also spoke about proportion. "One law is universal, have one thing above the rest, either by size, office or interest. Don't put the pinnacle without the spire." And "Have one large thing with several small things to bind them together."[60] Much of Nineteenth century cresting in structure and design seems to have followed the doctrine of

Viollet-Le-Duc and also appears to have been heedful of Ruskin's observations.

NINETEENTH CENTURY ARCHITECTURE IN CANADA

The Revivals in Canada

The Revival styles, so popular in Britain and France, found their way to Canada, where they were interpreted with a sense of originality reflecting the spirit of the new country. Here, as in England, the early Revival styles matured into "Picturesque Eclecticism", which dominated Canadian architecture during the latter half of the Nineteenth century. The period of the Revivals in Canada dates from approximately 1810 to the 1850's and is known as Early Victorian. High Victorian architecture in the Canadian context dates from the late 1850's through the 1890's. This latter phase provides the background for the focus of this thesis.

The period of Early Victorian architecture in Canada was affected by European trends and this influence can be attributed to a variety of sources. The British ruling class emulating the styles of the mother country wished to adopt architecture which mirrored their past and reflected the tastes of "home". At this point in time, many of the available architects had originally been from England or were British trained. In either case, they were familiar with contemporary architecture which was primarily Classical, Gothic or Renaissance. Pattern books and travel logs abounded, displaying examples of European and American architecture, the latter being strongly influenced by Classical designs. The end result was that architect and patron were presented with several stylistic options from which to make their selection. A good example of this is illustrated by the plans submitted for a new Parliament in Québec City. In 1811, Governor James Craig set up a commission which examined proposals for the building.[61] (Fig. 24). Among these received were

designs of both a classical nature (with Greek detailing) by the London architect Joseph Gandy and a Neo-Gothic interpretation by another Londoner, Jeffrey Wyatt.[62] The plans of Thomas Baillargé (1791-1859) a Canadian architect, were later accepted in 1831 and they consisted of renovating and reconstructing the old Episcopal palace in which the present Parliament was housed.[63]

GOTHIC REVIVAL IN CANADA

In addition to the sources of inspiration for the Gothic Revival in Canada, outlined in the previous paragraph, the style was also introduced by the Catholic Church in Québec as well as by the Anglican Church across the country. The Catholic parish church Notre-Dame in Montréal, was to be replaced by a large and impressive church seating eight to nine thousand.[64] As their exclusive tenure of religious authority in Montréal was slipping away, the wardens of Notre-Dame sought to construct a magnificent place of worship (unlike anything seen before) in order to regain their power.[65]

An American architect James O'Donnell (1774-1830) was hired and having a personal interest in Gothic, he designed plans for the first major building of the Gothic Revival style in Canada.[66] (Fig. 25). O'Donnell's designs for Notre-Dame drew inspiration from a variety of sources including the twin towers of Notre-Dame in Paris and Benjamin Henry Latrobe's (1764-1820) church of St. Paul in Alexandria, Virginia (1817-18).[67]

Montreal's Notre-Dame was a monumental undertaking and it influenced Catholic Church architecture in Québec for decades.[68]

The Anglican Church of Canada's interest in Gothic came directly from the Church

of England, which was busy promoting the Cambridge Cambden Society's principles of church building. The extent of this influence can be seen in the construction of Christ Church in Fredericton (1836) which was designed by Frank Wills and William Butterfield, who was a favoured architect of the Anglican church. (Fig. 26). This building was based on fourteenth century Gothic and it does not show any of Butterfield's later polychromatic tendencies. While not all parishes could afford to import architects or their designs, the basic doctrine of the Ecclesiologists was spread across the country by the many British "men of the cloth", who came to Canada and disseminated some of these beliefs which were then reflected in even the simple churches they had built in their own diocese.[69]

Some of the other Protestant sects adapted the Gothic Revival or certain elements of this style such as pointed windows, to decorate their churches, but it had more to do with following a trend. Outside the larger cities, the Gothic Revival proved popular as well. The publication known as The Canada Farmer, directed primarily to a rural population, published plans for a simple Gothic country church which could be built anywhere. (Fig. 27). The design included the decorative feature of a wrought iron finial. [70] With the examples of Gothic Revival architecture increasing, it was not long before this style was adapted for secular purposes.

In domestic architecture, the Gothic Revival enjoyed success particularly in Ontario, due to the presence of more British architects than anywhere else in Canada. [71] While the wealthy could afford Gothic Revival in brick or stone, such as the Elizabeth cottage in Kingston (Fig. 28), (1845) the less well to do were inspired by ideas from The Canada Farmer, which showed what one could do in the same style but on a smaller scale.[72] (Fig. 29). There was also an influx of pattern books which displayed numerous versions of Gothic Revival and these can be partly credited with importing the notion of the Picturesque to Canada. This concept was easily assimilated by architects and builders because of an abundance of impressive scenery with which to set the architecture and

popularized versions of Picturesque architecture provided important models for villa and cottage building in Canada.[73] These models included "Cottage Gothic, where a Gothic plan was made affordable because it was constructed out of board and are vertical..." [74]

Even in an urban environment, the Picturesque played a role. A lack of a dramatic setting was often compensated by the use of ornamentation. Much of the Gothic Revival architecture was decorated with wooden gingerbread trim, intricate bargeboards, lacey and scalloped eave trims and finials. These decorations became bolder and more pronounced during the latter half of the Nineteenth century. Characteristic of this later stage of the Canadian Picturesque was the attention paid to the"sky outlines" of structures. George E. Woodward, an American who published a pattern book in 1865 observed .

> It is simply the suggestion that too little attention has been paid to the "sky outlines" of our country houses. Roof and chimney tops have been treated as necessary evils, instead of being made, as they may be, highly ornamental. ...In any case, the horizontal (roof) lines should be broken.[75]

The Elizabeth cottage (Fig. 28) and the small Gothic cottage illustrated in The Canada Farmer (Fig. 29a) show that the concept was already a familiar one in this country.

Gothic Revival was interpreted in institutional architecture by mid-century. Trinity College in Toronto (Fig. 29) was built under the direction of the Anglican Church in 1851 and designed by the architect Kivas Tully (1820-1896).[76] This highly decorative Neo-Gothic building with its many towers, turrets and sharply pitched gables exploits George Woodward's philosophy of a broken roofline to the fullest. It is a looser and more creative Gothic, where the ornamentation forms part of the structural elements. While Pugin had said that "decoration was not simply to be added to a building as icing, but was to become an integral part of a building's structure,[77] the interpretation rendered by Trinity College

would likely have not agreed with him and rather hints of the freedom of Picturesque Eclecticism to come.

ITALIANATE IN CANADA

The emerging trend toward the Picturesque naturally implied the use of Italianate. This type of architecture in Canada was no doubt influenced by English examples such as Nash's villa architecture and Barry's Renaissance palazzo clubhouses. Italianate did not derive its influence from one particular style but rather it borrowed from a variety of sources, in particular Italian Renaissance and vernacular architecture. In addition, it was often called the "Round" style, referring to the use of round arches from Italian and Norman/Lombard Romanesque traditions. Italianate villas were labelled Tuscan or Italian; churches were known as Lombard, Norman, Romanesque or Roman; public and commercial buildings were referred to as Round, Italian or Renaissance.[78]

From the 1840's onwards, this style became enormously successful in Canada, particularly in Upper Canada.[79] Part of its popularity was due to the proliferation of pattern books with Italianate designs, but more importantly, this style provided the builder with a wider range of choices than were available with Gothic. For example, Italianate permitted an individual to select elements from various architectural traditions and challenged him to create a structure reflecting his personality, limited only by his income. The options this style presented were in keeping with the philosophy of freedom and opportunity, characteristic of Canada in the mid-Nineteenth century.

> Italianate offered something for every taste and station in life and you could read into it whatever romantic, national or social implications you chose... You could think of Italianate columns and gables and pediments in connection with classical Italy and by extension with civic enterprise or the pretensions of Renaissance aristocracy or republican Roman ideals. (Perhaps that is why it was so popular in the U.S.). ...You could justify its use for town halls or railroad stations or post

> offices, for the mansions of both colonial aristocracy and believers in North American egalitarianism. But at the same time its tower arches and asymmetrical plans evoked the early Christian and Romanesque middle ages enough that high Anglicans and Roman Catholics could accept it for churches.[80]

Saint Andrew's Manse in Kingston, built in 1841-42 by George Browne (Fig. 30) is an urban example of Italian villa. Its features which are characteristic of Italianate include: a low pitched hip roof, with widely overhanging eaves, tall narrow windows, a lantern and arched doorway. "Bellevue", also in Kingston, was built after 1841 and is a more elaborate example of Italianate. (Fig. 30). Its most prominent feature is the off centre campanile. The plain stucco walls contrast with the decorative scalloped eave trim, which is similar in form to Nash's cottage at Regents Park.[81] The Tuscan columned verandah and ornamental balconies express the Picturesque vocabulary.

The opportunities afforded by Italianate, in the sense of selecting elements from certain styles as well as an increasing fascination with ornamentation, led to the development of Picturesque Eclecticism." Early Italianate became the chief vehicle for effecting a transition from early Victorian insistence on one eclectic style per building, to the High Victorian principle of mixing many styles for a picturesque effect."[82] The Livingstone House in Baden, Ontario illustrates the transition from Italianate to early Picturesque Eclecticism (Fig. 31). This villa with its columned entrance way and roof lantern incorporates Gothic features, such as the bay window and pointed gable.

SECOND EMPIRE IN CANADA

Another style, which exploited the characteristics of decoration and broken rooflines, became popular in Canada from the late 1850's to the end of the century. Second Empire originated in Europe and its primary feature, the mansard roof, found favour in public, private and domestic architecture, where it increased the head room in the

attic area, providing an additional usable floor. To increase the light, the mansard roof was almost always pierced with dormers and these dormer windows often appeared in a variety of designs. Second Empire also exhibited other stylistic tendencies such as prominent projecting center towers or end-pavilions, the frequent use of one and two storey bay windows, and bracketed windows or those flanked by columns or pilasters. The mansard roof was almost always crowned by decorative iron cresting and this crestwork was not always limited to the roof but could be found decorating other parts of a structure as well. Decorative patterns of colour or texture on the roof were also common.

This style was favoured in the United States particularly for institutional architecture and the Old State War and Navy Building in Washington (1871-1887) by Alfred Mullet is a mature example. Canada adopted Second Empire wholeheartedly and this trend started in the 1850's with construction of Toronto General Hospital (1854-78) (Fig. 32) by the Scottish architect William May (1818-88). Although this building exhibits some Gothic characteristics such as the mullioned windows and pointed doorway, the use of pavilions and mansarded towers with iron cresting heralds the arrival of Second Empire and hints at further development.

PICTURESQUE ECLECTICISM IN CANADA

Previous exposure to the principals of the Picturesque through such examples as Bellevue and Elizabeth Cottage, had prepared the way for a phase of greater experimentation, leading to the High Victorian age of Picturesque Eclecticism. As these homes reflected certain values conveyed by the traditional concept of the Picturesque, each represented one particular style, selected for its expressive qualities. The Livingstone House went a step further with the mixing of two styles. But it was really the construction of Dundurn that signified full eclecticism of style in Canadian architecture.

Dundurn, situated in Hamilton, was built in 1834-35 and this stately home was designed by Robert Charles Wetherell. (Fig. 32). While the villa was placed amid a grand natural setting, doing full justice to the intended relationship between building and landscape, the eclectic approach to style is equally dramatic. Wetherell has combined Classical (Greek), Italianate and Gothic details within the same composition.[83]

As the middle of the century approached, eclecticism of style was no longer limited to villas or architecture in a natural setting, mirroring the English experience. Architects and builders now had the freedom to select most any style or blend of styles for all types of architecture. This required courage and imagination on the part of Canadian architects for it meant breaking with convention. Those up to the challenge could potentially create highly original designs.[84]

The term Picturesque itself now connoted a strong emphasis on the visual. Picturesque effects were created by a bold use of ornamentation such as iron cresting and finials, uneven rooflines formed by pavilions, gables and towers as well as "movement" produced by the projecting and recessing of the wall surfaces. Picturesque Eclecticism in Canada referred to the uninhibited use of styles and ornamentation to create a striking visual impression.

> ...the picturesque building was conceived as an emanation of pastness in general. By choosing and combining forms drawn from many ages past, the picturesque architect thought to make real something of the mystery of history, to set before both mind and eye a tangible expression of the continuity of human culture, past and present. To create an image like this, each form had its function. Consider the use of the characteristic ironwork and towers. They represent not superfluous gingerbread decoration but a deliberate breaking of the building's sharp outlines so that it will seem to trail off into infinite space, in the same way eclectic forms trail back into infinite time.[85]

The High Victorian era with its penchant for ornamentation encouraged the use of iron cresting and finials and this practice also found favour in Canada; not only because it reflected contemporary European trends, but it also allowed even simple structures some degree of creative expression.

The construction of University College in Toronto (1856-59) by Frederick William Cumberland (1821-81) marked Canada's official foray into Picturesque Eclecticism. (Fig. 33). As this building was meant to symbolize the importance of secular education, it was grand and imposing. While the prototype is supposedly borrowed from Oxford Museum (1855) by John Ruskin,[86] the architect here has added a mansard roof and elements of the Romanesque origin in the "round" motif. (Fig. 33). The use of an uneven façade, decorative stonework and iron cresting completes a picture which has been designed primarily to attract the eye with a highly original visual effect.

By the 1860's the decorative elements found in examples of Picturesque Ecclecticism included polychromy. This technique was not subtle but it indicated the degree of enthusiasm for ornamentation and its potential for making a personal statement. Polychromy was displayed in various types of architecture including domestic and was not limited to the well-to-do. (Fig. 34). Some Anglican churches adopted this approach and they had no doubt been influenced by Butterfield's later work. (Fig. 34). These examples illustrate ornamental touches of various origin, blended together. When mixed with eclectic structural styles, the result was not an architectural "hodge-podge", but the creation of one visual whole that expressed the essence of Picturesque Eclecticism in the Canadian context; a style which blossomed in the 1860's.

> It was a new and appropriately matured style, no longer the tacked together collection of details that was Early Victorian architecture,

but the fully developed visual unity of Picturesque Ecclecticism would henceforth dominate architecture in Canada.[87]

NOTES

CHAPTER II

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CHAPTER III

THE NATIONAL CANADIAN STYLE - PICTURESQUE ECLECTICISM AND THE FEDERAL GOVERNMENT BUILDINGS

The High Victorian period of architecture which included the styles of Gothic Revival, Second Empire, and Italianate, and Picturesque Eclecticism dominated the mid-Nineteenth century onwards in Canada, a phenomenon which we have seen was influenced by European trends. However, unlike England with the Gothic Revival or France with the Second Empire, no one emerging national Canadian style was adopted from coast to coast until the 1860's, as a result of a single event.

THE PARLIAMENT BUILDINGS

The construction of the Parliament Buildings not only created an imposing series of structures symbolizing the political dawning of a new nation, but it also provided Canadians with an official "sanctioned" architectural style, one with obvious European influences while at the same expressing Canadian character.

Not surprisingly, Ottawa was among the first cities to be influenced by the magnificent architecture and intricate cresting of the Parliament Buildings. Other Federal Government architecture in the city from the Victorian Period (1860's to 1890's) displayed a wealth of ornamental iron cresting. This crestwork will be examined and the stylistic influences and methods of construction will be analyzed wherever possible. Gates, railings and lamposts will also be touched upon briefly.

Parliament Buildings - Style and Design

In 1840, an act of Union brought Ontario and Québec into the Province of Canada.[1] Over the ensuing years, there was much discussion concerning the location of

the capital. Queen Victoria announced her decision on January 17, 1858 and her selection of Ottawa as the provincial seat was met unfavourably.[2] The controversy continued and it was not until 1859 that the matter was finally laid to rest and Ottawa became the capital of the province.[3]

In the spring of 1859, a public competition was held for the design of the Parliament Buildings. Sixteen proposals were submitted for the main building and seven for the Departmental Buildings. The partners Thomas Fuller (1882-1898) and Chilion Jones (1835-1912) won for the Centre Block Building while the architectural partnership of Frederick Stent and Augustus Laver (1834-1898) won the design for the Departmental Buildings.[4] While both firms were working separately on the different projects, their award-winning designs complemented each other, creating a homogeneous and imposing Gothic style complex atop the Barrack Hill location.

Stent and Laver had designed an asylum and new military hospital in Québec City and later designed for the new government buildings in Sydney, Australia.[5] Fuller and Jones were both devotees of Gothic architecture. Fuller came to Toronto from Bath, England and was already known for his famous St. John's Cathedral in Antigua when he arrived in Canada in 1857. He later formed a partnership with Laver (of Stent and Laver), and they designed the winning plans for the state Capital in Albany, New York and the City Hall in San Francisco.[6]

In designing the Centre Block, Fuller and Jones have exploited the visual potential of the natural surroundings of the site in true Picturesque tradition. A most spectacular site had been chosen, a hill overlooking the City of Ottawa with views of the Ottawa River, and Hull. The river view was quite rocky and jagged creating a powerful feeling while the south faced a busy thoroughfare and urban environment. (Fig. 35).

Instead of being a hindrance, the fact that the setting for the Centre Block had these

juxtaposed characteristics, provided the architects with the inspiration for a brilliant design. They did not try to mask anything but instead accentuated the scenery in creating their picturesque masterpiece.

In the following excerpt the architects explain the challenges of their final design.

> The preparation of a design for this site is attended with much difficulty owing to the different nature of the scenery, when viewed from the river and from Wellington Street, that the former being of the boldest and grandest character whilst that from the latter is more park like. ...(the architects would here remark that they consider the frontage towards the town, as that in which the Entrance for the public should be.)...
>
> Thus the Norman or Romanesque style from the great boldness of its detail, would be in keeping with the river front, but would be dull and heavy when viewed from Wellington Street. The architects consider that a building appropriate for the use of Parliament should present in its exterior a dignified, elegant and also cheerful appearance. After much deliberation, they have adopted the Gothic style most adapted to attain this end and when properly treated, they believe it more capable of meeting every modern requirement then any other style, besides being much more picturesque and less costly...
>
> In the present case, the architects after having inspected the truly magnificent site selected for this building were fully convinced that a Gothic building only could be adapted to a site at once so picturesque and grand.
>
> In a building of this magnitude which accommodated two houses of legislature and offices, a certain amount of uniformity in that portion was a necessity and such being the case, the architects in accordance with the true principal of architectural design have not attempted to conceal it, but by an arrangement of chimney shafts, dormers, etc. have endeavoured, and they trust, not unsatisfactorily, to introduce a broken and picturesque skyline. Another reason for the uniformity and extended frontage on the south was the fact that Wellington Street runs parallel to it and is approached by two streets at right angles, and it is further required that the Departmental Buildings should be arranged in two blocks and placed on either side (known as West Block and East Block).
>
> The north front is to a certain extent uniform - so broken in outline that it would present a general contour quite in unison with the grandeur of the scenery as viewed from the rivers.[7]

The architects' concerns for style, practicality, purpose (both symbolic and practical) and site created a structure which mixed strong Gothic elements such as the rough stone masonry, pointed openings, window tracery and the buttressed library, with pronounced Second Empire features revealed in the mansard roof and the use of pavilions on the Wellington Street façade.[8] There is also emphasis on a decorative and broken roofline, for perhaps both symbolic and stylistic reasons. In combination with the use of pavilions and the buttressed library, the effect dazzles and delights the viewer from all vistas. Much like a piece of sculpture, which is a whole created of many parts, it offers the viewer an exciting and new experience from every angle. This is Canadian Picturesque Eclecticism at its best.

Fuller and Jones in their explanation of the design alluded to the phenomenon of "uniformity" when (strangely enough) referring to a broken and picturesque skyline. But by uniformity or "unity of design" the High Victorian architects meant something quite different from a consistency of form. They were looking at it as a constant emphasis on a certain kind of visual experience, not by uniformity, balance or harmony, but by irregularity, unexpectedness and variety. The more consistent the contrast, the more picturesque the building as a whole. Diversity of form was the key to picturesque unity.[9] Even small details were designed to stimulate the eye. The architects were versed in the art of polychromy, contrasting the grey stonework with green and purple patterned roof tiles. They also exaggerated a broken roofline effect with the use of decorative iron cresting, which gave the illusion of not knowing where the roof ended and the sky began.

Although, the total composition is made up of various identifiable influences from the past, these Parliament Buildings were not a copy of an architectural model elsewhere. "The designers have endeavoured not to copy the Gothic of any particular period or country but the noble civic buildings of the Low Countries and Italy have afforded them suggestions".[10]

It seems Fuller and Jones wished to create something unique and totally Canadian, in keeping with the purpose of the structure. The records state that the architects were intrigued by the Gothic architecture of the low countries. While Fuller was originally from England he in all likelihood had visited other European countries and had seen examples of European Gothic. However, if the architects wished to refresh their memories and keep abreast of new developments in architecture, the Library of Parliament, by 1857, [11] had built up quite a collection of architectural books and periodicals. These included Ruskin's The Seven Lamps of Architecture, Viollet-Le-Duc's Dictionnaire Raisonné, and Andrew Downing's pattern book on Cottage Residences. These authors and their books were highly influential in spreading the word about the Gothic Revival . The fact that their works were available in Ottawa, in the Library of Parliament, suggests that they were indeed held in equally high esteem and no doubt contributed to the zeal with which Canada adopted the Gothic Revival and related styles of the High Victorian Period. The Library's collection also contained many books on past and contemporary European architecture (Appendix II).

As well, there were engineering and other technical manuals, design books and publications which touched on the controversial topic of the use and properties of iron in architecture. While there does not appear to be a specific work on iron cresting per se, some of the books on the properties of iron or works on ornamentation and design as well as the pattern books, may have provided some inspiration in this area. It is entirely possible that Fuller and Jones, as well as other Ottawa architects, made use of the Library's facilities while developing their ideas.

Parliament Buildings - Construction

The construction of the Parliament Buildings started in 1860, was a slow process complicated by poor management and cost overruns. Between 1861 and 1863 no work

was done while a Royal Commission considered the matter. By the fall of 1865, the buildings were ready to receive some 300 civil servants who were stationed in Québec City and the first session of the legislature was convened on June 8, 1866.[12]

Thomas McGreevy was the contractor for the Centre Block Building [13] and Jones, Haycock (of the Haycock mining enterprise) and Comp.[14] were contractors for the Departmental Buildings. But the names of sub-contractors such as the blacksmiths, masons, plumbers, carpenters, painters, etc. remain undocumented and thus it is impossible to establish who was responsible for example, for completing the cresting work. Occasionally, the Department of Public Works contracted out directly and in instances (where the contracts still exist) we are able to ascertain who the craftsman was. These contracts show that the winning tenders came from a variety of locations. No doubt, expertise, price and perhaps even at that time patronage was implicated in the tendering process. On the whole, the construction of the Parliament Buildings has not been properly documented, as work seemed to continue well into the 1870's. The Annual Reports of the Department of Public Works shed some light on yearly progress, but they are confusing at best. References to the same task appear from one year to the next, leaving the reader to wonder whether the work had been stopped altogether or had been completed but was of such poor quality that it had to be redone.

The Use of Iron in the Construction of the Parliament Buildings

Before discussing the ornamental ironwork, it is important to briefly note that iron was used for structural purposes (in certain cases) in the construction of the buildings. Fuller and Jones specified that Parliament should have a fireproof floor and its use here possibly signifies the first application of rolled iron joists in a North American building.[15] Whether it was used or not remains a mystery. If so, the flooring must have been of inferior quality because it did nothing to inhibit the total destruction of the buildings caused

by the fire of 1916. Only the Library of Parliament remained intact because iron doors had been placed at the entrance as a precaution against such a fire.

Stent and Laver also used of iron for structural purposes in the Departmental Buildings. The ironwork used to support the towers was supplied by Messrs. Thomas Leighton and Company, the Bridge Ironworks, Rochester, N.Y. who was awarded the contract to complete this work for the West Block.[16] Cast iron girders were also used to support other walls.[17]

Another important structural application of iron was made by Fuller and Jones in their design for an iron framework to support the roof of the buttressed Library of Parliament. It is not known whether the expertise to build such a roof was available in Canada at that time, but the contract was awarded to the Fairbairn Engineering Company of England. (Perhaps the fact that it was imported from Europe made it that much more impressive). Peter Kilduff of Ottawa was awarded the contract to raise the roof and complete any repairs or finishing that was required.[18]

Ornamental Ironwork on the Exterior of the Parliament Buildings

The architects of the Parliament Buildings, fully versed in the techniques of Picturesque Eclecticism created visual excitement by using intricate patterns of ornamental iron cresting and finials.[19] But the addition of cresting and finials was not simply a "decorative" touch added as an afterthought, they were an integral part of the whole structure and its carefully intended effects, much like the polychromatic roof tiles (Fig. 36). The purpose of the cresting was to create a pattern on the sky the same way tracery does on a window. In a dim interior, a window provides the light to look through and conversely, the dark cresting creates the same effect on a light sky. As a result, the viewers' gaze is fixed upwards at this "window" to the sky.

Parliament was not a religious institution (where traditionally the cresting and

finials played a role in pointing upwards to the realm of God) and hence the ornamental ironwork is not expected to play a spiritual role. However, a certain practice involving the colouring of the exterior cresting and finial work leads one to believe that some symbolism may have been intended. All external ornamental ironwork was painted deep blue (royal or Chinese) and the terminating or highest points, e.g. finials, weathervanes etc. were to be gilded.[20]

The combination of blue, the colour of the heavens, and gold which would sparkle in the sun seems to go further than the simple intent of Picturesque Eclecticism. Both black and blue are colours associated with metal and yet the latter was chosen. On the Parliament Buildings, the roof cresting acts as a natural border between heaven and earth. By painting and gilding the cresting, the distinction between the two worlds becomes blurred, symbolizing perhaps that as the goal of Parliament and all that it stands for has been already achieved, no dream will be beyond reach for this country and its people.

Even from a purely aesthetic point of view, the coloured cresting and finials must have persuaded even the most uninterested individual to turn his attention upward and become inspired by this magnificent structure. And from afar, when the façades of the buildings were not fully visible, the towers and ornamental ironwork remained in sight against the sky, creating an imposing and magical picture from any distant view.

Cresting Design Analysis

Iron cresting was a decorative feature shared both by the Centre Block and the Departmental Buildings. Entries in the Annual Report of the Department of Public Works of 1867 described the appearance of the roofs of the three buildings, which used cresting and finials in a similar fashion.

> The truncated roof is ornamented with cresting and terminals. On the ridges of the roof are ranges of ornamental wrought iron crestings. Terminals are also fixed on all the towers, gables, dormers etc. These are all painted blue with the prominent points gilt.[21]

There is no documentation available which allows us to determine whether the actual cresting design of the buildings was identical to the architects' original proposals. However, architectural blueprints from Stent and Laver of the Departmental Buildings, reveal details of cresting, (though rather simplified) which correspond to the cresting shown in a Nineteenth century photograph of the same buildings. (Figs. 37 and 38).

The Centre Block cresting is much more of an enigma. As it has been difficult to locate similarly detailed blueprints for the Centre Block, photographs and engravings have provided the only clues to the style of cresting used.[22]

Cresting- Departmental Buildings

The cresting design used on the flats of the roofs is quite a simple one (Fig. 38). It has a trefoil motif, popular during the Gothic and Gothic Revival periods in Europe, only the upper arch has been narrowed to resemble a pointed arch found in Gothic windows. In the centre of the trefoil is a leaf with the same shape as one belonging to a native Canadian maple, although much simplified. A rail tops the cresting which gives it a balustrade effect. Every second trefoil is bordered by a finial, capped with what looks like a fleur-de-lys and every third finial is even taller, crowned with a larger fleur-de-lys.

The fleur-de-lys was a popular motif in European ironwork during this time, but it perhaps had an added impact here as the new Dominion of Canada now comprised both anglophones and francophones. As the origin of this particular cresting design is unknown, we may assume that the architects were perhaps influenced by pattern books and other reading materials, and by their travels.

But the design is not unlike a version of cresting that appeared in the MacFarlane Foundry Catalogue in Glasgow. (Fig. 38). While the MacFarlane version is more ornate,

a trefoil design is used, separated , by a style of small finial, similar to that displayed on the Departmental Buildings. On the more elevated portions of the roof, a quatrefoil (another popular Gothic motif) was used in place of the trefoil. (Fig. 39).

Decorative cresting also appeared as guard rails or balconnettes surrounding the roof of certain pavilions and it could occasionally be seen decorating the tops of the gables. In both of these cases it was used to highlight or enhance finials. Two styles of this type of cresting existed on the Departmental Buildings shown here (Fig. 40). They are of similar design and have a quatrefoil pierced by diagonal lines. Each quatrefoil is framed on top and bottom by rails and is separated from the next by a finial. The only difference between them is that the cresting decorating the pavilion has a cross motif in the centre of the quatrefoil. The reason for this may have been a symbolic one, in keeping with the notion of the boundary between heaven and earth. It may also have been one of design, as the cresting surrounding the finial or spire of the pavilion should be more emphatic than the cresting related to the finial of a gable. The basic form of the two designs, that of a rectangular section with a centre motif, broken by diagonal lines, was used in the Nineteenth century. The Smith and Founders Director, a catalogue of designs for ironworkers, published in England in 1824, by L.N. Cottingham, applied similar forms to designs for balconies, railing and gates. (Fig. 41).

A third style of cresting was also used on the Departmental Buildings. While photographic proof is not available, the design was shown on Stent and Laver's blueprints for the East Block. (Fig. 42). Here the cresting was used on a pavilion to enhance the finial. The design looks to be one of an inverted heart with scrolled ends. A somewhat similar motif may be found in Cottingham's design for Guard Irons for windows. (Fig. 43).

Cresting - Centre Block

There are two types of cresting design used on the Centre Block. In similar fashion to that used for the Departmental Buildings, one design was primarily for the flats of the roof and another one was to decorate the tops of the pavilions. There is however, one exception - the pavilions on the Centre Block do not have large finials or spires crowning their tops. Perhaps it was felt that with the Main Tower any other light vertical emphasis would be lost beside its massive form.

The cresting decorating the flats of the roof is more complex than that of the Departmental Buildings. (Fig. 44). There are single sections bordered by finials and in the centre of the finials is a circle motif broken by diagonal lines, similar to the idea found in the Smith and Founders Director, shown in Fig. (41). Growing out of the circle on either side is a stem with what looks like a small leaf. The stem forms a diagonal line which meets with another diagonal line coming from the stem of another finial. The meeting of the two stems forms a Gothic arch which dominates the space between the two finials.

The cresting is topped by a rail which in this case is twisted. Each finial is decorated by horseshoe shapes, one on top and the other inverted. This Centre Block cresting shares three similarities in design with the Departmental Buildings. The first is a central motif pierced by diagonal lines, the second is defining a Gothic shaped arch and the third is the use of a leaf motif. However, the Centre Block cresting is more vertical and more interesting in its approach, perhaps because the lack of ornate finials required more detail in its design.

The cresting of the Centre Block pavilions is also unusual. (Fig. 45). Each section is basically dominated by an inverted heart motif, a simpler version than that depicted on the East Block. (Fig. 42). Every second heart includes a cross, which is also part of the cresting design of certain of the higher pavilions on the Departmental Buildings and perhaps was meant to impart the same effect. Each single section of cresting is bordered

by a finial capped by what looks to be a leaf motif. The finials which correspond to the edge of the pavilion are taller still, crowned by a spear shape, broken by a similar combination of horseshoe shapes as was the design on the cresting on the flats. A twisted rail links the finials together and it is also attached to the heart motif by a twisted bar which reaches up from the point of the heart to above the rail. Leaves; crosses, spears, centre motifs pierced by diagonals and inverted hearts, are all motifs that were popular during the Gothic Revival period and examples of these were depicted both in the MacFarlane Foundry Catalogue and in Cottingham's Smith and Founders Director.

The cresting designs on all the Parliament Buildings create a dramatic picture against the sky, an effect which was created by following a philosophy of cresting design similar to that of Viollet-Le-Duc's. He was a believer that simple designs, well-pronounced, produced a most desired effect.[23] Over a large distance, Viollet-Le-Duc felt the design should be fairly wide. If the distance was short, a tight or closely woven design was required. In accordance with Viollet-Le-Duc's suggestions, the cresting on the pavilions of the buildings is a larger and more vertical design than the one on the flats of the roofs. John Ruskin's views on ornamentation also are applicable here. Ruskin felt that small details should be broken by larger details [24] and the sequence of cresting and finials follows this pattern.

Cresting - Construction

The contract to erect the Parliament Buildings included specifications for the cresting work. The ironsmith was to follow the design outlined in detailed drawings provided by the architect/contractor. The ironwork was to be cleaned and well painted in red and boiled in oil twice before leaving the foundry. Once it had been placed on the roof, it would be painted Chinese blue, with the terminals gilded.The cresting was secured to the roof by a system of wrought iron straps which were attached to the finials and secured to

the roof timbers with wrought iron bolts.[25] (Fig. 38).

Other specifications requested that the one inch iron bolts which secured the straps to the terminals, the straps themselves, and the nuts, washers and heads should all be ornamental, if exposed.[26] This is a particularly interesting revelation which follows Pugin and the Ecclesiologists' philosophy that ornament should be part of structure and not solely an addition. In most cases, none of these would be visible to the eye and yet there was an effort made to ornament such simple functional hardware items. Even Viollet-Le-Duc in his detailed description of cresting construction never mentioned the decoration of the structural parts.

The specifications also show that attention was paid to the quality of workmanship and the properties of the iron. It seems that the cresting work of both the Centre Block and Departmental Buildings was made of wrought iron. The contractor for the Centre Block, Thomas McGreevy was told that all the wrought ironwork was to be Swedish or scrap iron, well-hammered and with all welds to be done in the best manner.[27]

Jones and Haycock, the contractors for the Departmental Buildings were given similar instructions. The roofs were to be provided with wrought iron cresting made to an approved design and then it was to be fixed around the outer edges of the flats. Great care was to be taken to prevent leakage through the galvanized iron covering. While it is impossible to determine who was sub-contracted to execute the ironwork, documentation exists showing what the smiths and ironfounders were paid for doing various work on the Centre Block Building, including executing wrought iron roof cresting. (Appendix III)

Finials

Finials - Departmental Buildings

Two groups of finials or terminals will be discussed. The first group consists of

terminals adorning the tower and pavilion tops of the Departmental Buildings, and the second contains examples of finials decorating the gables.

The overall design of the finials for the tower roof is quite an impressive one. (Fig. -40). The main spire is broken at intervals by four different motifs, starting at the bottom with a lily, then a scroll- work design which could have been influenced by a plant motif and a type of anthemion (a flower-like ornament associated with the classical period). The spire is capped by a version of the fleur-de-lys. Both the fleur-de-lys and the anthemion were variations of motifs which were depicted in Cottingham's Smith and Founders Director. (Fig. 43).

The lily was a popular pattern used in ironwork and is a symbol associated with France, like the fleur-de-lys. The scroll, also a common motif, was expressed in decorative ironwork over the centuries. Cottingham illustrated some in his Smith and Founders Director. (Fig. 46). Another example of scroll-work can be seen (Fig. 46), this time designed by the English architect William Butterfield. The two iron supports for the centre spire also have a small amount of scroll-work which complements the centre motif and breaks the monotony of the straight lines of the supports themselves.

On either side of the supports are two small finials. They are crowned by a fleur-de-lys and are broken by a star at the same height , creating a balance in the design. Stars were another favourite motif and in this instance being positioned in the sky, they connote a spiritual significance. The finials are decorated with scroll-work at the bottom and the lines are longer and more fluid than the scroll-work we have seen so far. Incorporated into the design are leaves and flowers that are perforated, letting the light shine through.

The next finial on the same blueprint shares some similar elements with the finials just discussed, but there are also differences. This finial is not as tall as the spire, but is larger than the two finials which flank the spire, leading one to believe that it stands alone.

Looking from the bottom upwards, there is another fleur-de-lys, followed by an unusual perforated leaf design which encircles the finial, creating a chandelier like effect. The spearhead which caps the finial is a common motif in ornamental ironwork. Variations on this spearhead theme can be found in The Smith and Founders Director. (Fig. 45).

Just below the spearhead on the finial is an intriguing decoration. It combines the motif of the cresting attached to the finial (a quatrefoil with 2 diagonal lines) with the theme of a spearhead. The resulting shape is reminiscent of a small weathervane.

The final finial to be discussed in this category is yet again different from the others. (Fig. 47). It is quite a simple but bold design, possibly because there were meant to be two identical finials in close proximity adorning the same tower top. The ornamentation consists of a simple scroll and several ball-like motifs. Three-quarters of the way to the top appears a series of circular balls, which is similar in design to that adorning the finial in an American pattern book Detail, Cottage and Constructive Architecture, by A.J. Bicknell, published in 1873. (Fig. 47).

An example of the simple scroll motif can be also found in Village and Cottage Architecture, an English pattern book dated in 1868 published by Blackie and Son (Fig. 48). The idea of the ball which caps the finial is displayed in A.J. Bicknell's pattern book of 1873. (Fig. 49). What is interesting about this finial is that all the motifs encircle the finial pole and can be seen from all sides.

The next group of finials to be examined are those present on the gables of the dormer windows of the Departmental Buildings. The first rests on quite an ornate gable. (Fig. 50). The finial itself is of a twisted bar design, similar to the cresting on the Parliament Buildings. The twisted bar was not a new technique as shown in the pattern book of Blackie and Son. (Fig. 48). On either side of the finial is scroll-work like the design on the finials we have just examined. (Fig. 49). At the base of the finial is a leaf

motif with the ends worked in a scroll to form a small heart suggestive of a design in Bicknell's pattern book. (Fig. 47). A spearhead caps the finial, and just below is another leaf and flower motif.

The next finial to be discussed is by far the most fluid of all the designs. (Fig. 51). Scroll-work is combined with flowers, which are of a type similar to those used in the finial examined above. This finial is capped by a leaf motif which resembles the shape of a maple leaf. Overall, the design is less ornate than the others but it is well suited to the rather plain gable.

Finials - Centre Block

The Centre Block finials have by far the simplest design. (Fig. 45). With the central tower on the south façade and the spire of the buttressed library on the north, any ornate decoration on the finials would be lost beside these strong vertical forms. Adorning the gables they incorporate a hanging flower motif, similar to the first finial discussed on the Departmental Buildings. There is also a ball motif and the finial is capped by an arrow or spear. The only unusual part of the design is a small blade motif under the spear.The patterns of the gable finials on all the Parliament Buildings are generally less ornate than that of the tower finials. But they are still much more ornamental than the design of the finials attached to the cresting work on the roofs of the buildings.

Inspiration for most of the motifs incorporated in the design of the finials has been taken from pattern books, such as those previously identified. However, rather than having a specific model to follow, the architects most likely combined the motifs that they preferred creating a unique expression in keeping with the theory behind Picturesque Eclecticism.

The finials share similar elements and yet differ a great deal, which helps to create

a magical effect. Light plays on the angles of the turrets and towers as well as on the differing height and design of the finials casting shadows and the effect is very dramatic. Ruskin would have been pleased by this approach because he believed that if ornament does its duty then the ornamentation and its points of light and shade tell in the general effect.[28]

The arrangement of varying the sizes of finials as well as the design also allowed an observer from the distance to share the mystical effect created against the sky. Ruskin also found this to be important for if the ornament had no distant decorative power, it failed.[29]

Finial - Construction

The finials were made of both wrought and cast iron, although it is difficult to give specific examples.[30] Contract specifications for completion of the Western Block discuss the construction of the finials.

> The several finials shown on the drawings on tops of turrets, towers, gables to towers, gables, dormers etc. all to be of cast and wrought iron securely fixed... The several finials will have long bolts going down into the roofs and there securely fixed. The smaller finials will have split strap ends, well and strongly secured to the roofs.[31]

It is interesting to see how the larger finials were attached to the roof. (Fig. 40). The bottom of each finial was secured to a plate which was in the shape of a clover leaf and the plate was in turn fixed to the roof with long bolts.

Two elements of the design assisted in supporting the finials or spires to the roofs. Both Figures (40 and 50) show scroll-work on either side of the finials. While this motif is ornamental, it also functioned as an additional small support because it was secured to both the roof and the finial.

The centre spire has iron supports on either side of it (Fig. 40) and these supports form a triangle which joins with the spire at the apex. A scroll design decorates this part of the finial and it also works to secure the support poles to the spire or main finial, the whole of which is secured to the roof by the plate and bolt method.

Examples of the split strap ends, which is another system of securing the finials to the roofs, are all shown in figures (47, 50 and 51). The specifications previously mentioned suggest this approach be used for the smaller finials. This method is similar to the one encouraged by Viollet-Le-Duc in his Dictionnaire Raisonné. The split strap end system is more complicated than it looks, consisting of many pieces or bands of iron attached to bars and other bands with bolts to keep them secure. The diagram also shows that at the bottom, the finial itself comes down through the centre of the strap ends to provide additional stability. The contract specifications quoted earlier concerning the West Block name the contractor as being Thomas Leighton, Bridge and Ironworks Company of Rochester, New York.[32]

It is interesting to note that figure (47) shows the finial is of wrought iron while the specifications for the decorative elements suggest that either cast or wrought iron could be used. In addition all of the decorative elements are bolted onto the finial and are not part of the finial at all. As in the case of the cresting, the finials were painted blue with the tips and other details gilded.[33]

Parliamentary Library Cresting, Finials and Weathervane

There are no blueprints available for the library which show ornamentation of the roof. However, Nineteenth century photographs attest to the fact that there were finials on the roof and the tower was capped by a weathervane. While little information is available, contemporary pictures show a finial and weathervane design which seem to correspond to the Nineteenth century arrangement. There was also crestwork decoration. (Fig. 52).

The cresting design seen in the photograph is comprised of a panel bordered by an arrow-capped finial. In the panel, a quatrefoil motif has been placed in the centre of an arch and leaves grow out of the point of the quatrefoil and each end of the arch. An arrow rises up from the centre of the cresting panel emphasizing the vertical thrust of the tower. The dormer windows also have small finials. (Fig. 52). While not clear, it seems the finials are capped with a cross motif and scroll-work, and foliage grows out of each side of the finial. A ball motif is also included.

While the designs of both the cresting and finials are different from what has been seen thus far on the Parliament Buildings, some of the various motifs used in the Library tower are common. (Fig. 52). A leaf motif such as found in figure (48) rests near the base of the finial. Simple scroll-work sits in the middle and the top is capped by an arrowhead with an inverted horseshoe motif, similar to that displayed on the Centre Block cresting. Scroll-work is attached from the base of the finial to the buttresses, a concept which has been repeated in some of the finials discussed previously.

The crowning glory is the weathervane on top of the Parliamentary Library. (Fig. 52). This was not a new concept, as examples of weathervanes are shown in figure (49). The summit is capped by a ball and underneath it is a series of leaves. Both are elements common to finials on the other buildings. Slightly lower is a type of pointer which all weathervanes seem to enjoy, judging from the examples shown in figures (38 and 49). The design incorporates a star and crosses. Further down are the directional arrows capped by a crown with crosses. These arrows cross each other with rich scroll- work. To secure the vane, a method was used similar to that in figure (40). The main finial is supported by iron bars on either side and covered by ornate scroll-work which extends onto the roof of the tower. A contract notation mentions that the vane was made of wrought iron.[34]

Main Tower - Finials and Railing

The north façade of the Centre Block was impressive with its library roof and vane and the south façade was equally striking with the main tower, which also displayed some ornamental ironwork. (Fig. 53). The tower bears similarity to some of the tower tops and spires displayed in Cottingham's catalogue for Smiths and Founders. (Fig. 54). Here, the finials extend out of the capitals of columns. A leaf motif, similar to what has been encountered on other buildings, rises out of the capital and encompasses the finial and further up a leaf design continues. The finials are capped by what looks to be a tulip or lily. From the capitals extend the supports for the centre pole and these supports are curved and dotted with simple curls. Appendix IV shows the actual specifications for the contractor of the Tower.[35]

The main pole or mast was to be made of wrought iron, the best English "low moor" malleable iron. The standards or columns were to be of cast iron, of the best quality, cleaned and sharp at all arrises and moulds, the leaves forming the capitals to be cast separately and bolted on. Made of wrought iron, the finials were secured onto the capitals with bolts.

In keeping with the colour scheme adopted on the other buildings, the tower was to be painted royal blue and varnished with copal. As the contractor followed a model (which unfortunately does not exist anymore) he was instructed to paint the yellow portions of the model gilt, done with the very best quality of gold imported specially for the purpose. It is assumed that the gilded parts consisted of the ornamental elements as well as the mast.

Aside from instructions for the ornamental work on the tower, the specifications called for a cast iron railing to be placed on the base of the tower. The railing was connected to the standards on either side and the railing design included Gothic arches, with leaves and crosses forming the details. All these motifs are part of the ornamental

ironwork "vocabulary" displayed on the other buildings. It is only logical that the summit or pinnacle of the main building should reflect that Parliament Hill was a homogeneous complex, not just a collection of structures.

The specification names John Wellington Webster from Ottawa, as the contractor for the tower roof. While it would be easy to assume that he would contract out the ironwork to a local foundry, there is no way to prove it. The capability existed locally as the Vulcan Iron foundry produced ornamental columns and Fleck, its proprietor, also received contracts to provide ornamental railings for the interior of the Parliament Buildings.[36]

Parliament Gates, Railings and Lamp Standards

When the architects designed the Parliament Buildings, they also considered the importance of creating an impressive public entrance for the site. This was achieved by the erection of a series of ornate and imposing iron gates and a fence. The use of entrance gates was not a novel approach but rather a time-honoured tradition used with churches and medieval castles. Symbolically speaking, anyone passing through the gates enters another world where spirituality, wisdom, or in this case, the voice of the people reigns supreme.

At first glance, the design of the main gate (Fig. 55) is fanciful and richly ornamented, in comparison to any cresting work analyzed so far. However, upon closer examination, many of the motifs used in the Parliament cresting have been carried over into the design of the gates. These include quatrefoils, crosses, inverted heart shapes, the same leaves, curls, flowers and scroll-work. The bars or poles are even twisted. Each panel of the gate is decorated, but the upper part of the panel is not. Instead, it is perforated by the shape of a large Gothic arch. This is a cresting motif but more importantly, the space it creates performs the same function as the cresting, in that it acts as window from one world to the next. It is interesting to note that this is a characteristic of the central gates

only. The side gates are different. (Figs. 56 and 57). Although unlike each other, they incorporate many of the same motifs used in the centre gates. The difference is that the designs in both of the side gates fill up almost the whole panel, which suggests that the main gates had another purpose as well.

Aside from the gates, a railing extended all the way around the hill and joined the gates together. (Fig. 58). The design of the railings comprises a leaf and a trefoil motif which carries over the theme used elsewhere. The gates and railing made quite an impression, the like of which had never been seen before in Ottawa. The overall design is said to be the work of the Ottawa architect, Frederic J. Alexander (1849- 1930) and it is suggested that Alexander was responsible for the design of the ornamental ironwork in the interior of the Parliamentary Library. The two designs in fact bear some resemblance.[37] Another source provides inspiration for the design as well, the MacFarlane Iron Foundry Catalogue shows examples of gates similar to those of the Parliament. (Fig. 59).

The gates and railing seem to be made of wrought iron. Figures (55, 56 and 58) show that the construction was comprised of many pieces, joints and bars bolted together. In all likelihood, some portions of this work was cast. The H.R. Ives Company of Montréal received the contract to execute the work and they were also responsible for the ironwork in the library. There is little doubt that in 1876, Ottawa did not have the capability to undertake such detailed and intricate work.

In addition to the railings and gates on Parliament Hill, there were ornamental lamp standards of cast and wrought iron dotting the grounds. These lamp posts were of various designs and some of the same motifs present in other ironwork on Parliament Hill were used.(Fig. 60) The specification for the work called for Lowmoor wrought iron to be used. The cast iron was to be the best gray cast of an approved English or American brand.Details were also discussed concerning the quality of workmanship to be provided,

which was to equal that of the Parliamentary Gates in front of West Block.[38] (Appendix V). Continuing in the tradition of selecting Québec contractors, Monsieur M.E. Chanteloup was awarded the contract for this work in 1878.[39] He ran a foundry on Craig Street in Montréal.

OTTAWA IRON GATES AND FENCES

Throughout the Nineteenth century, the Parliamentary gates and railings continued to be the most decorative of any fencing in the city of Ottawa. Aside from the Governor-General's residence, there were very few highly ornamental iron gates or railings in the city. Some public buildings had railings, such as the courthouse, but these were of extremely simple design, comprised of plain iron bars. Even the well-to-do professionals, politicians and lumber merchants did not have fences around their stately homes. Or if they did, the fences were often out of wood.

The Governor-General's gates as shown in figure (61), were far less ornate than those on Parliament Hill. Unlike the main gates of Parliament Hill, the main panels here consist of thin bars, knobbed at the centre and the ends, each of which is broken by a finial that combines a trefoil and fleur-de-lys motif. Scroll-work decorates the top of the gates and the initial V sits in the centre. The Montréal foundry of William Clendenning made the gates in 1868.[40] While the bars allow for viewing into the grounds, there is no attempt to create a window- like effect, perhaps because it is a private residence and there is nothing to see in the near distance anyway.

Domestic fencing was also rather limited and when it appeared it was often made out of wood or a combination of wood and stone, rather than iron. Figure (62) shows a large house with an iron fence and the houses on either side are separated by wooden fencing. This iron fence is of a simple design consisting of panels with a loop broken by finials and bars at the top and bottom which have a snowflake-type motif. While not of an elaborate

style, it is none the less an important example because it is the first piece of ornamental ironwork that we can attribute directly to an Ottawa blacksmith. J.R. Smith had this design patented in 1892. (Fig. 6).

One is at a loss to explain why there was so little iron fencing, as the local manufacturing capability was there, and therefore one did not have to depend on the Montréal and Toronto markets. Catalogue sales for iron fencing also existed. While the customer did not receive a one-of-a-kind design, the price was very reasonable. A catalogue from a Gananoque foundry shows the types of fencing available through this means. (Fig. 67). One of the fence designs was ordered for the cemetery at the large estate of the wealthy Billings family.[41]

But even the well-to-do who could afford to order original ornate iron gates and fencing from such firms as Clendinning and H.R. Ives of Montréal or some Toronto foundry, chose not to do so. (Figs. 63-66) While many such fences adorned estates in Toronto and Montréal, the citizens of the capital of Canada did not follow this trend. Even more intriguing is the fact that all of these homes have iron cresting. There was, therefore, a conscious choice to use ornamental iron on roofs but for the most part, the practice did not extend beyond the house itself.

THE NEW NATIONAL STYLE

The construction of the Ottawa Parliament Buildings with their emphasis on Picturesque Eclecticism led to a new architectural spirit across the country. Influences of this "sanctioned" style were felt in the design of other legislative buildings in other provinces. The Québec Parliament (1877) bears a strong resemblance to Fuller and Jones' Ottawa design. (Fig. 68). The Manitoba legislature of (1881-83), while not as similar to the Ottawa Parliament, also displays some common characteristics such as pavilions, mansard roofs and towers, as well as iron cresting. (Fig. 68).

The Department of Public Works commissioned the construction of several buildings in Ottawa that were needed by the Government. At the same time, it undertook a building program across the country. The designs the Department selected not only influenced the Ottawa landscape, but they helped to bring this new national style into other cities.

A new post office was required for Ottawa, and the Chief Architect of Public Works', Thomas Seaton Scott (1826-1895), selected a location on Confederation Square directly across from the Parliament Buildings. While the post office design did not include the Gothic elements common to the Parliament Buildings, and was in fact in the Italian style, it did retain the Second Empire characteristics of the Parliament Buildings in the towers, mansard roof, pavilions and cresting. (Figs. 69 and 70).

The cresting on the post office is very different from the Parliament cresting. Alternate panels have different designs, as one shows an inverted heart and scroll motif, (characteristic of Centre Block cresting) and its neighbour resembles the panel of a gate or railing and a very plain one at that. The total effect is one of creating a railing around the top of the building. As well, the vertical patterning complements the column treatment of the façade. Similar linear designs in ironwork can be found in Cottingham's catalogue, The Smith and Founder, (Fig. 71).

A description of the post office in the Ottawa Citizen of December 8, 1875, observed "A very handsome design is employed in the cresting which goes around the whole of the building and angular turret".[42] The building took four years to complete (1872-76) and Mr. Godfroi Chapleau of Montréal was awarded the contract to furnish all ironwork including the cresting.[43] It is interesting to note that the tender included cast iron columns and girders to be used internally for building support.

The design for the Ottawa post office while impressive, was not unique. The

Public Works Department built post offices in Toronto and Montréal which bore a striking resemblance, right down to the unusual central towers. (Figs. 72 and 73). These post offices were not only buildings but symbols of the Canadian government and therefore, were intended to reflect a certain image and style. What better way to communicate this than through the buildings whose purpose was to facilitate communication between Canadians. It was thanks to the Department of Public Works building program that this new national style was on the march.

Close to home, Public Works undertook the renovation of the Government Workshops which stood on the west edge of Parliament Hill. (Figs. 74 and 75). These "workshops" housed the Senate and interestingly enough, an art gallery.[44]

While simple, the workshops retain some features from the other buildings on the hill including polychromatic tiles and finial and cresting work. At different corners of the mansard roof sits a finial, supported on either side by fine scroll-work with a floral motif, not unlike the flowers on the Parliament gates. The work is quite delicate. Some of the gables also have finials, which are capped with a ball as those just discussed. It is surprising that consideration to finial detail has been afforded this rather ordinary building. Perhaps the idea was to continue the theme of the gates and railing to which the structure is attached.

The final federal building in Ottawa to be examined is the Drill Hall (1879), (Fig. 76), which was meant to act as a hall and shed or storehouse for defense. Though utilitarian in function, the Drill Hall has been given a fanciful exterior. Italianate in its treatment, its details include polychromatic brickwork and an unusual central pediment. This version of Federal Picturesque Eclecticism comes complete with iron cresting on the pavilions.

Here the crestwork is amusing. Each panel consists of a large inverted heart motif

bordered by a finial broken, by a loop. Design elements on the small finials include a loop and the larger finials display a lily-like motif and are capped with a ball. The wide heart shapes of the cresting complement the round treatment of the windows, although this particular motif is not what one would expect to find decorating such a structure.

The three federal buildings demonstrate that although the design and function of each was unique, attention has been paid to incorporating characteristics of Picturesque Eclecticism. No matter how simple the structure, ornamental cresting was often a feature. Ottawa could not help but be affected by the example of the Government and from the 1870's through to the 1890's Picturesque Eclecticism, and its variety of stylistic expression (influenced by the architecture of Gothic Revival, Second Empire or Italianate) complete with ornamental cresting, was adopted by the city.

NOTES

Chapter III

1. R.A.J. Phillips, The East Block, (Ottawa: 1967), p.8.

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3. Ibid., p. 123.

4. National Film Board of Canada, Stones of History - Canada's Houses of Parliament, (published by the Queen's Printer, 1967), forward.

5. Ibid.

6. Ibid.

7. Public Archives of Canada (hereafter PAC), Records of Special Boards and Committees, RG 11, Vol. 841, exhibits 12 and 13, sections 2 and 4.

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9. Alan Gowans, Building Canada - An Architectural History of Canadian Life, (Toronto: University of Oxford Press 1966), p. 121.

10. PAC, Records of Special Boards and Committees, RG 11, vol. 841, exhibits 12 and 13, section 3.

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12. Shirley E. Woods Jr., Ottawa - The Capital of Canada, (Ottawa: Doubleday Canada Limited, 1967), p. 126.

13. PAC, Department of Public Works Contracts, RG 43, vol. 2487, contract 2572,, April 18, 1863, p. 615.

14. PAC, Department of Public Works Contracts, RG 43, vol. 2487, contract 2573, April, 1863, p. 629.

15. Eric Arthur and Thomas Ritchie, Iron, Cast and Wrought Iron in Canada from the Seventeenth Century to the Present, (Toronto: University of Toronto Press, 1982), p. 97.

16. Department of Public Works, A General Report of the Minister of Public Works for the Fiscal Year 1876, (printed in 1877), p. 77.

17. PAC, Department of Public Works Contracts, RG 43, vol. 2486,

contract 2110, December 7, 1859, p. 62.

18. PAC, Department of Public Works Contracts, RG 43, vol. 2489, contract 4025, November 21, 1872, p. 1931, and see Footnote 15, Chapter III.

19. Other decorative ironwork appears externally on the Parliament Buildings, such as on door hinges and locks. Paul Vaux of Québec was responsible for much of this work, both externally and internally, which consisted of decorating functional articles. An example of his work can be found in - Eric Arthur and Thomas Ritchie's Book, Iron, Cast and Wrought Iron in Canada from the Seventeenth Century to the Present, (Toronto: University of Toronto Press, 1982), p. 99.

20. Department of Public Works, Annual Report of the Department of Public Works for the Fiscal Year, 1867, p. 205.

21. Ibid, p. 222.

22. The examples of decorative ironwork which are analyzed here are only those for which detailed illustrations exist. There may have been other examples but the documentation is unavailable.

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24. John Ruskin, The Seven Lamps of Architecture, (London: published by J. M. Dent and Sons Ltd.), 1st edition, 1907, last reprint 1956, p. 127

25. PAC, Department of Public Works Contracts, RG 43, vol. 2492. contract 4853, November 15, 1875, p. 3096.

26. PAC, Department of Public Works Contracts, RG 43, vol. 2486, contract 2000, December 7, 1859, p. 22.

27. PAC, Department of Public Works Contracts, RG 43, vol. 2487, contract 2572, April 18, 1863, p. 621.

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31. Ibid.

32. Ibid.

33. Ibid.

34. PAC, Department of Public Works Contracts, RG 43, vol. 2487, contract 2572, April 18, 1863, p. 622.

35. PAC, Department of Public Works Contracts, RG 43, vol. 2489, contract 3451, October 28, 1871, p. 1827.

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38. PAC, Department of Public Works Contracts, RG 43, vol. 2493, contract 5668, p. 3695.

39. Ibid.

40. Eric Arthur and Thomas Ritchie, Iron, Cast and Wrought Iron in Canada from the Seventeenth Century to the Present, (Toronto: University of Toronto Press, 1982), p. 78.

41. See material on the Billings Estate Cemetery, City of Ottawa Archives.

42. Article on "Ottawa Post Office", Ottawa Citizen, December 8, 1875.

43. PAC, Department of Public Works Contracts, RG 43, vol. 2489, contract 4367, p. 2391.

44. R.A.J. Phillips, The East Block, (Ottawa, 1967), p. 8.

CHAPTER IV

OTTAWA'S VERSION OF PICTURESQUE ECLECTICISM AND THE USE OF CRESTING AND FINIALS

After the 1860's, the institutions of government dominated the character of the city of Ottawa. In order to service "the industry of government", commercial enterprises grew and between 1860 and 1875, the commercial centre shifted from Sussex and Rideau Streets, on to the Sparks Street area, which included Wellington Street and the frontage of the Parliament Buildings.[1]

COMMERCIAL BUILDINGS

It is not surprising that many banking institutions set up operations in Ottawa during the 1870's to take advantage of the increasing population and relatively stable economy. What better way for these banks to emanate the power, wealth and stability of a new nation than to erect impressive buildings on a choice location close to Parliament Hill. Many financial institutions began to change the character of Wellington Street by replacing residences and small commercial buildings with opulent Second Empire buildings [2].

These buildings show a similarity in height, scale, style and mansard roofs. (Fig. 77). But the unified character had nothing to do with chance. Following the example set by Baron Haussmann (1809-1891), a French civil servant responsible for a city improvement scheme in Paris, all the buildings along Wellington Street had to be approved by the federal government. The result provided a grand thoroughfare for Ottawa.[3] A good number of these Wellington Street structures displayed iron cresting.

The British American Bank Note Company built an imposing building on Wellington Street in 1888. (Fig.78). The Ottawa architect James Mather (b. 1843 - ?) was instructed to make the building fireproof as the Dominion notes, bonds and postage, were engraved and printed there.

Mather chose to use an Italianate treatment combined with other elements for the façade. The central frontispiece displays classical columns while the stonework is polychromatic. Dormer windows with very ornate gables pierce the mansard roof and a central pavilion is featured. The construction included iron girders, staircases, steel grated doors and windows, as well as fireproof vaults.[4]

Iron cresting decorates the roof on either side of the pavilion and it is of an intriguing design. There is no top horizontal rail above the cresting and one of the motifs used is unusual. The pattern consists of an inverted heart shape and growing out of the heart, is a sunflower. Each panel is separated by a fern-like finial. The sunflower was a motif in historic ironwork often found in the United States.[5] The central pavilion is decorated by a pediment in which the central motif is also a sunflower. The building conveys feelings of security and strength but yet there is an airiness about it resulting from the many windows, the decorative gables and fanciful cresting.

The Bank of British North America situated close to Parliament Hill, was an impressive stone structure (circa 1875) in keeping with its function. (Fig. 79) . The architect who is unknown, certainly favoured the Italianate style but he was also versed in the art of Picturesque Eclecticism. Round windows and a columned portico are combined with rough-faced masonry and decorative quoin work on the sides. Emphasis is placed on the centre of the façade where the windows are flanked by finely decorated panels and the bottoms of the windows are decorated with fine scroll-work. This central thrust continues upward to a dormer window with pediment which comes out of a pavilion.

A mansard roof decorated with cresting crowns the Bank. The design is simple

but bold in keeping with the character of the building. This is the first time that balustrade cresting is not used at all, in other words the cresting is not contained by rails on the bottom and top. The basic pattern is a cross motif broken in the centre by a diamond shape and the top of the cross has an arrowhead which is flanked on both sides by a leaf motif. An arrow design continues the upward thrust emphasized by the small spires on top of the cornice and by the pavilion, culminating at the flag pole. The whole effect is one of strength and power, yet the use of finely worked ornamentation hints at "whimsy".

Banks were not the only buildings to be found on Wellington Street. The Rideau Club, built by James Mather in 1875,[6] also enjoyed this prime location. The Club was very prestigious. Wealthy businessmen and politicians frequented this gentlemen's retreat across from Parliament Hill. (Fig. 80) Mather's design was " reserved" in keeping with the building's function and it was executed in brick.

The windows of the club are decorated with brick moulding and the double windows of the façade are broken by a small column. This Italianate structure is also topped with a mansard roof which has polychromatic rooftiles and decorated gabled windows. A small pavilion juts from the roof on one edge only - that which brings together the façade and the side which faces the Parliament Buildings.

The pavilion is ornamented with iron cresting and the pattern is a rather fanciful one. Each panel of cresting is fairly wide bordered by a small finial and at each edge of the pavilion is a larger finial. The overall cresting composition complements the size of the pavilion and continues to focus the viewer's eye upward. All the motifs are similar to those found in the cresting of the Centre Block pavilions such as inverted hearts with crosses or four-leaf clovers in the centre. Large finials with hanging balls and leaves also resemble the finials on the Centre Block gables. While not identical to the Centre Block work, it is interesting to note that there are strong similarities between the two, particularly

as the Rideau Club is situated directly across from the Centre Block. A pattern book, Detail, Cottage and Constructive Architecture, by the American A.J. Bicknell, published in 1873, shows a crestwork design which may have influenced the Rideau Club composition. (Fig. 81)

The three Wellington Street buildings analyzed all display characteristics of Picturesque Eclecticism. They share certain common elements such as the use of pavilions which likely reflects their proximity to Parliament Hill and the post office (with its imposing central pavilion) recently built. However, each structure is unique and the architects have continued to apply this criteria in the selection of the cresting design.

As most of the cresting here and in the other examples to be discussed does not exist anymore, it is extremely difficult to determine whether cast or wrought iron was used and the capability existed locally to produce both. While the iron cresting on the Parliament Buildings was mostly wrought, cast iron was named as a substitute in some of the specifications. Presumably, both materials were used on Ottawa buildings. Similarly, as no blueprints exist detailing construction, it can be assumed that the cresting and finials on Ottawa buildings were assembled in the same manner as on the Parliament Buildings.

The preference for iron cresting was not limited to the wealthy banks. While more modest commercial establishments were often made of simple brick, in comparison to the impressive stone façades we have just seen, many still proudly displayed ornamental cresting. (Fig. 82). Both the Palace Bakery and Rogers & Sons Undertakers are two such examples. The photographs of Rogers and Sons establishment shows that there were even finials adorning the dormer window gables. Although it is difficult to see, there is also decorative brickwork above the doors and windows in both cases. Clearly, even on such simple structures, the architects endeavoured to incorporate a little of the ornamental flavour from the architecture of Picturesque Eclecticism.

Another similar structure is Windsor House, an Ottawa hotel which was in operation in the late Nineteenth century. (Fig. 83). The brick building has a mansard roof broken by a large arched-shape dome or pavilion. On either side of the centre, iron cresting is displayed. At first glance, the style is very similar to the design on the Bank of British North America. It shares the same motifs and the same vertical patterning effect, however, there is a difference. Neither has a rail on top of the cresting creating a balustrade. Instead there is a rail at the bottom which emphasizes the end of the design. In the case of Windsor House, the bottom rail introduces another cresting pattern - a series of triangular shapes which complement the vertical thrust of the arrowheads contained in the upper cresting. This lower cresting is also bordered by a solid rail on the bottom which clearly signals the end of the pattern. A finial ends the cresting on the roof edge, but it is difficult to see the design. The practice of "double patterning" was also used in the Nineteenth century for iron railings, window guards, etc. (Fig. 84).

Windsor House's roofline is dramatic with its large central arch alone, yet the architects decided to use cresting and did so carefully, for the cresting works to enhance the arch and not compete with it. An intricate design would be lost as would one level cresting only. By double patterning simple designs, the cresting becomes taller, larger and easier to read. No doubt the unknown architects who built the new hotel wanted to make it as modern as possible and added crestwork in keeping with the city's changing skyline.

MUNICIPAL BUILDINGS

The population of Ottawa was expanding due to the influx of civil servants during the 1870's and 1880's,[7] and the city found itself expanding rapidly. Some facilities had to be enlarged and others were built to accommodate the growing population.

The city market was one such project. (Fig. 85). In 1875, an extension of the market was undertaken because of overcrowded conditions. An article published in the

Ottawa Citizen briefly discussed the plans. "It will be two stories high with a mansard roof and iron cresting finish. The style of architecture is French." [8] This last fact seemed to impress the journalist, but he has not given the architect credit for using elements from various styles; an Italianate lantern, a mansard roof and round headed windows. In addition, he makes no mention of the similarities in style (Picturesque Eclecticism) that the market shares with other buildings being constructed in Ottawa at that time. The journalist does however, mention the iron cresting, which seems to indicate its importance. The architect, James Mather,[9] used crestwork in many of his commissions and the market is no exception. However, the design was always unique and reflected the character of the building. Here the cresting is simple and very linear. The pattern, made up of a series of horizontal bars joined at different angles, suggests a chain. The different levels of cresting creates a double patterning effect, so that the crestwork becomes tall and linear, complementing the vertical thrust of the lantern. Tall finials perch at each roof edge with what looks to be a butterfly inspired motif. The cresting and finial designs are repeated on the two levels of the lantern. Mather used the same central pavilion scheme on the British American Bank Note Company, but here he added the unexpected touch of the squared lantern. But the lantern was not to be closest to the skyline, that honour was reserved for the cresting.

In 1874, the city commissioned Thomas Keefer, the city engineer, to erect a waterplant, (Fig. 86), known as the Waterworks.[10] Keefer's design incorporates Romanesque details, such as the rounded entrance way and windows and the use of rough stone with a mansard roof. Highly decorative cresting decorates the roof of this utilitarian structure. The wide panels of the crestwork contain carefully wrought hearts and flowers with scroll-work and this cheery design brightens up what would otherwise be an austere building. There are small finials broken by a simple V motif and the larger finials are capped with arrows. Although we have seen many of these motifs before, the overall

design still differs from ones we have seen previously.

Expect the unexpected and exploit the visual through ornamentation, are principles of Picturesque Eclecticism used by many buildings, including Parliament, particularly with respect to the roofline. The use of cresting added not only a decorative touch to the skyline, but the fact that it appeared so often indicates that it was a popular feature of this style in Ottawa. More importantly, while similar motifs are used, the overall cresting patterns are sufficiently varied enough to suggest that consideration was given to the selection of the design.

INSTITUTIONS

The rapidly changing fabric of the city during the latter half of the Nineteenth century necessitated the establishment of schools and social institutions. Elgin Street Public School, constructed during this period in the heart of Ottawa, is a good example of Picturesque Eclecticism. (Fig. 87). The architect is unknown as is the exact date of construction, but the building has predominantly Romanesque details such as the wide round arched doorway and tower, which in this case is hexagonal. Attention has been paid to decoration with the use of polychromatic roof tiles, window trims, lantern and cresting. The design of the cresting is simple with each panel consisting of an inverted heart motif with finials growing out of the point of the heart. The small finials show a double ball.

In 1875, the Ottawa Teachers College or Normal School, was designed by the Toronto architect Walter R. Strickland (b? died 1915). This is not surprising as schools came under the jurisdiction of the Province of Ontario which had its own Public Works Department. Like the federal government it "imported" to cities the architectural style(s) that the Department and chief architect favoured. The local Ottawa supervising architect was James Mather. (Fig. 88). Strickland designed the school in what he termed the Norman Style of architecture with heavy masonry, rounded windows and arches, etc.[11] In

addition, Strickland used Gothic arched detailing and pavilions along with a lantern and spires. Ideas for the style of the building are said to have come from University College in Toronto[12] (Fig. 33) and the resulting design fit in perfectly with contemporary Ottawa architecture.

It is impossible to determine the actual design of the cresting as the photographs of the Ottawa Normal School are unclear, but the finials can still be admired. There are several large finials adorning the pavilions, gables and spires and at first glance, they share similarities with the large finials already examined on the Departmental Buildings on Parliament Hill. (Fig. 40). Two motifs break the finial and the top is capped by an arrowhead. This effect is highly decorative and accentuates the irregular rooflines. Some of the smaller finials resemble weathervanes and quite possibly were, as that was also a popular practice in the Nineteenth century. The MacFarlane Foundry Catalogue showed several styles of weathervanes as did the pattern book from A.J. Bicknell. (Fig. 89).

A new orphan's home was also constructed in the late Nineteenth century in Ottawa. (Fig. 90). The architect is again unknown, but he certainly was well versed in the art of Picturesque Eclecticism. The building mixes some Romanesque details with Second Empire and Gothic, not unlike the Normal School although the design is different. The roofline is by far the most interesting aspect of the home with fairly ornate cresting and a highly decorative bargeboard on the centre gable.

There are two different cresting designs on the Orphanage. The flats of the roof are covered with crestwork which incorporates an inverted heart motif with a trefoil and a cross. Out of the point of the heart grows a leaf motif (an idea similar to one on the Elgin Street School) and it creates a finial type of effect. This cresting is not unlike some on the Departmental Parliament Buildings and in MacFarlane's catalogue. Adorning the pavilions is crestwork of a similar design, but the trefoil has been replaced by different centre motifs.

Both sets of cresting use the technique of double patterning, displaying a bottom row of double arches or squares.

Cresting on the pavilion is much taller as are the accompanying finials, in comparison to those on the flats of the roofs. The finial design on the pavilion is butterfly-like and closely resembles the finial on the City Market. (Fig. 85). On the roof flats the finials share a similar design but they are smaller, and capped by an arrow instead of a ball motif. The overall effect of the cresting is quite magical and elevates the Orphanage from being merely mundane and austere.

A new YMCA was built in Ottawa by James Mather in 1888. (Fig. 91). That same year another of Mather's designs, the British American Bank Note Company, was constructed. Other buildings examined, by Mather, display iron cresting and the YMCA is no exception. At first glance, the basic structural design is similar to the plan of the Rideau Club, (Fig. 80), as one end pavilion on the roof accentuates the front and roof of the building. The YMCA is less ornate than the Rideau Club with its decorated gabled dormer windows and cornice. However, the cresting on the "Y" extends along the roofline and is not limited to the pavilion.

Once again, the cresting design used here is different from Mather's other works. Each panel consists of an elongated quatrefoil and the small finials have a horseshoe and leaf motif. The crestwork is bordered by a rail on top and bottom and the bottom rail is repeated twice. This type of double patterning creates a fence or rail-like effect. The large finials are quite plain but are capped by an unusual motif - a ball pierced by arrows going in different diagonal directions.

While it is difficult to determine the architects or exact dates of construction for all of the buildings discussed, it is even more of a challenge to find out who was responsible for executing the actual ironwork. No records have been unearthed that shed light on these

sub-contractors. Even Mather, who was obviously very active between 1870 and 1890 remains a mystery. No documentation on him is available, only a few newspaper articles and items. The periodical Canadian Architect and Builder (started in 1888) briefly mentioned Mather and other Ottawa architects solely in the context of being responsible for the design of certain buildings.[13]

CHURCHES

The doctrine of the "Ecclesiologists" was followed closely by the Anglican community judging by the Anglican churches built in Ottawa during the 1860's and the 1870's. While most were certainly Gothic Revival in style, a strong use of ornamentation (favoured by Picturesque Eclecticism) played a great part in the design.

In 1865, the influx of many Anglican civil servants created a strain on the Anglican churches. Another parish was created and the building committee engaged Thomas Fuller (architect for the Centre Block) to design a new church called St. Alban's the Martyr. (Fig. 92). This Gothic Revival structure was conceived by Fuller and modified by his protégé, King Arnoldi.[14]

Construction began in 1866 and it is difficult to ascertain whether Arnoldi or Fuller was responsible for designing the iron cresting and finials decorating the roof and spire bell tower. The Vulcan Foundry is supposedly responsible for executing the crestwork.[15] Each wide panel consists of two fan-shaped motifs with diagonal lines and scroll-work. The small finials with their split strap ends form part of an onion-like design and they are topped with a butterfly. A large finial on top of the gable crowns the front of the church and includes a cross within a diamond motif. The MacFarlane Foundry catalogue shows crosses done in a similar manner. (Fig. 93).

The finial atop the spire resembles a weathervane and has a quatrefoil pierced by diagonal lines. The idea for a vane might have come from the Parliamentary Library but

the motifs used were the same as those on the cresting of the Departmental Buildings. The finial also has scroll-work in the butterfly shape.

Although the cresting ends at the bell tower in this early Notman photograph, (c.1870) (Fig. 93) shows that the cresting extended all along the roofline.[16] The side gable was crowned by an iron finial similar to the one on the front gable. While the cresting and finial designs were not identical to those on the Parliament Buildings, the effect was similar. The Gothic Revival style with its rather ornate cresting must have been an impressive and awe-inspiring sight for church goers. St. Alban's was the favoured church of many of the political elite including Sir John A. Macdonald, who had a pew there.[17]

Another Anglican church Christ Church, was built in Ottawa by King Arnoldi in 1872. Not surprisingly, it was an equally impressive structure in the Gothic Revival tradition. (Fig. 94). While only the finials remain, an article in the Ottawa Citizen mentions that iron cresting was to adorn the roofs.

> The outline of the building is well broken. The views from the chancel end being particularly striking. Round the whole edifice wherever they would be useful or ornamental are handsome buttresses and where they abut against gables, terminate in neat pinnacles. The gables themselves will form quite a feature in the design and are certainly something new to this part of the world. They are to be built in steps and have handsome wrought iron terminals, which it is intended to finish in blue and gold. Of wrought ironwork, there will be a large quantity introduced, principally for purposes of ornament such as cresting to the roofs, hinges and mountings to the doors, stanchions design, in fact, the style of architecture of the Church throughout is true English Gothic.[18]

The journalist mentions that the decorative iron finials are to be wrought and finished in blue and gold. Arnoldi's teacher Fuller had used the same technique with the Parliament Buildings and his pupil must have adopted a similar approach. The fact that wrought iron was favoured is not surprising either. Although it is impossible to determine whether cast or wrought iron was used in many of the buildings examined, it is safe to

assume that the earlier structures (1860's and early 1870's) likely employed wrought iron for the finer and more intricate work. The article also states that the ironwork designs were "chaste medieval".

All three finials have basic cross designs, appropriate for a church and the main bar of the finials is twisted. They are secured to the gables by a scroll-worked stand similar to the type used on the Parliamentary Library roof. The centre of the finial bears a cross motif, different in each case, which is encased in a diamond or is alone. The bar of the cross has stars at the ends and the top of the finial is capped by an arrowhead with scroll-work, like some patterns found on Parliament cresting. The tall finials enhance the vertical thrust of the buttresses and spires.

The Congregational Church, the work of local Ottawa architect John Bowes, was built in 1888 and it reveals a continuing trend towards Gothicism, demonstrating aspects of Picturesque Eclecticism. (Fig. 95). Gothic arches abound, but the use of a mansard roof, patterned gables on dormer windows and a polychromatic spire suggest that the architect wanted to create a unique design.

The cresting consists of several "layers" of double patterning and the design closest to the skyline incorporates a cross motif. The rest of the design is made up of a series of short lines and small balls joined together to form a rail, creating a balustrade effect. A similar pattern was used on the Byward Market cresting and this tall crestwork accentuates the buttresses and spires.

St. Joseph's (1893) is another example of a church incorporating the ornamentation so favoured by Picturesque Eclecticism. (Fig. 96). This Catholic church is in a basic Romanesque style characterized by the round wide arched motif. The symmetrical main elevation and projecting frontispiece with bell tower hint at Italianate. Decorative

polychromatic brick and stone brighten up what would have been an otherwise rather ordinary structure. The photograph shows only an iron cross on top of the steeple, but an article in the Ottawa Citizen mentions the use of roof cresting. "St. Joseph's is in the Roman style... and the roof cresting is by J.R. Smith."[19] While the architect is unknown as is the design of the crestwork, it is interesting to note that the work was executed by J.R. Smith, the same blacksmith who patented a railing design.

RESIDENCES

The influx of a new kind of worker, the civil servant, into Ottawa in the 1870's, changed the character of the old neighbourhoods and forced new ones to be built. One such area which was developed was within walking distance to the Parliament Buildings and it fit the residential needs of the wealthier civil servants, politicians and professionals. This district was known as the "Sandy Hill", the same area in which St. Alban's the Martyr Church was built.[20]

Some of the politicians and well-known personalities who lived there included Sir John A. Macdonald, Alexander Galt, Samuel Tilley, Sir Charles Tupper, Sir Frederick Borden, the Director of the Ottawa Citizen, and Sir Sanford Fleming, inventor and engineer.[21]

In the 1880's, civil servants and other workers also began moving into houses south of Laurier Street which was also fairly accessible to Parliament Hill.[22] In the 1850's and 1860's, the style favoured by the gentry for domestic architecture was, not surprisingly, the Gothic Revival.[23] But the trend was not one of "pure" Gothic, rather it tended towards Picturesque Eclecticism, influenced by current architectural practices in Ottawa.

From the 1870's to the 1890's, Second Empire and Italianate styles were also characteristic of residential Ottawa architecture.[24] In the 1890's, elements of Queen Anne style were also added to the repertory used by architects for Ottawa homes.[25]

Brick was mostly used as the building material for dwellings, but the very well-to-do sometimes used stone.[26] While different architectural styles may have been selected, many of these residential designs chose to incorporate iron cresting. Figures (62, 63, 64, 97 and 98) show five residences built either in Sandy Hill or in the downtown core, dating circa the 1880's and 1890's. Figure (63) shows a large brick residence with a mansard roof and cresting. Different characteristics such as the Italianate tower and projecting frontispiece, the Queen Anne shingled gables and the panelled chimney make this a strong example of domestic Picturesque Eclecticism.

Decorative Second Empire examples, characterized by lacey bargeboards and ornamental eaves, cornices and gables, appear in figures (62 and 97). There are even patterns incorporated into the brickwork. The different angles of the frontispiece turrets and gables in figure (97) also adds in delighting the viewer. Of less ornate design but still appealing are figures (64 and 98). Figure (98) displays a gambrel roof and decoration in the brickwork is reserved for the window trim. Most of the ornament rests with the varied levels of cresting decorating the exterior of the home.

The house in figure (64) is of a basic Second Empire design, enlivened by roof tiles, window labels and ornamental dormer windows. An Italianate porch with columns and the roof cresting add other decorative details.

The design of the cresting is extremely important here because the same one appears on all the examples of domestic architecture just discussed. Only the finials differ somewhat. The basic pattern consists of a panel of inverted heart motifs with central detailing. Out of the point of the heart, grows a leaf motif. This type of design bares some similarity to the crestwork on the pavilions of the Orphan's home. Each panel is bordered by a small finial capped by an arrow. In all cases, the crestwork contains double patterning, the lower levels consisting of a series of X's with a lower row of square arches. What is interesting, is that in all cases the cresting has worked. The only element varied to take into account the particular aspects of the architecture has been the finial

design.

Adorning the house in figure (64), are finials which seem to incorporate the inverted heart-shaped motif of the cresting. Figures (62 and 63) share the same large finials which are surrounded by elaborate scroll-work and what looks to be a cross motif. A ball caps the finial.

In Figure (97) the bigger finials are not part of the cresting design but top the turrets and gable. The finial to the left seems to have a weathervane appearance while the finial on the central gable resembles a motif shown in the MacFarlane Foundry catalogue. (Fig. 99). In this case, (Fig. 97), the finials help to emphasize the irregular angle of the roofline. A less ornate design is displayed in figure (98), in keeping with the less decorative façade of the house. These finials are broken by a ball and scroll motif similar to others already examined.

The question that remains to be asked is why was the same cresting design used on all five homes. Overall, the patterns in Ottawa crestwork have not been particularly imaginative. Yet, while similar motifs have been used, this is first instance where there has been duplication of design. As these houses belonged to the well-to-do, this was not a case of ornamentation for the masses. It is possible that the same architect was responsible for the construction of all these homes and that he favoured a particular cresting design with variations on the finials. Or, in the case of the homeowners, they may have requested this specific crestwork as it might have been a status symbol of sorts and even may have been imported from Toronto, Montréal or elsewhere. The question remains a mystery.

A similar debate surrounds the cresting shown on a simple Second Empire home, with decorated gables, dormer windows and a mansard roof. (Fig.100). While the cresting is not similar in design to that found on the residences just discussed, it is identical to the cresting adorning the British American Bank Note Company building. (Fig. 78). The December issue of the Canadian Architect and Builder in 1888 mentions that

James Mather, the architect of the British American Bank Note Company, had commissions for two brick residences in Ottawa.[27]

Brick was not the only material used for houses with iron cresting. Board and batten siding buildings, popularized in the A.J. Downing pattern book, were also found in Ottawa. (Fig. 101). This particular design shows a strong Gothic cottage influence with its gables and pointed wooden finials. It is full of decorated bargeboard and has a high-pitched roof with cresting. Two Italianate detailed porches complete the picture and it likely dates between the mid 1870's and mid 1880's. The cresting design is somewhat difficult to see, but it seems that there is a panel of inverted heart motifs similar to a design found in the Bicknell pattern book. (Fig. 102).

Stone was another material employed for residences. (Fig. 66). In this instance, the stone has been patterned to create a brick-like effect. But more interesting is the architectural design of the house. It expresses perfectly all that is Picturesque Eclecticism. The Gothic pitched roof and gables are combined with an Italianate square campanile in the centre of the house. The gables have decorated bargeboards and there is a fringed cornice around the campanile. Although the design itself is dynamic the architect still placed iron crestwork on the roof top. This example shows that cresting was not limited to mansard roofs.

The crestwork on this house is particularly intriguing. Nothing like it has been seen before in Ottawa cresting, but similarities to it can be found in the British pattern book of Village and Cottage Architecture by Blackie and Son, 1868 and in the catalogue from Cottam and Company, a British Engineering and Blacksmith concern. (Figs. 103 and 104). The design consists of a rather wide cross motif alternating with a triangle.

The Italian villa style influence can be seen in another stone residence. (Fig. 105). The rough stone work creates a patterned effect and the cornices, gables and porches are highly decorated. A lantern crowns the building and an ornate iron weathervane sits on top. The tip of the vane is rather plain but the bottom half contains a design with

directional arrows similar to the one on the vane of the Parliamentary Library. The scroll-work which secures the vane to the lantern bares some resemblance to work executed on the Parliament Buildings. Although there is no cresting, the weathervane performs the function of breaking the roofline, an important part of the picturesque idea.

Not all stone residences were as decorative as the two just discussed. Figure (65) shows a cottage with some Italianate details, such as the side porches, balconnette and round arched windows. Although the basic design is simple, iron cresting crowns the roofline. The cresting motif used reminds one of the crestwork adorning the Departmental Buildings, i.e. a panel of two inverted hearts. The finials are quite plain as well. It is difficult to ascertain whether the cresting was visible from the street, but certainly on close inspection the design urges the viewer to gaze higher and it adds interest to the roofline.

The final stone building to be examined displays a Gothic Revival design in conjunction with a pitched roof and gables. (Fig. 106). Of particular interest are the columned porch and the decorated chimney, all adding further decoration, so favoured by Picturesque Eclecticism. On top of the gables are wooden pointed finials similar to those in figure (104). There the wooden finials co-existed with iron roof cresting and here it is the same case. The crestwork consists of double patterning: on the first level, we can see an inverted heart design with what looks to be a central leaf motif inside, while out of the top grows another leaf motif. This resembles the pattern found on the pavilions of the orphan's home.

In the residences discussed, we are unable to name the architect or specific date of construction. However, in the case of the next four residences, we do know who the architect was but not whether these homes were ever built. (Figs. 107 to 110). This large house which seems to be built out of stone, (although the blueprint is unclear), is mostly Second Empire with some Italianate detailing in the round-arched windows and columned porch. (Fig. 107). The drawing dates from 1885 and the architect is W. F. Beckett. Little is known about Beckett except that the Ottawa City Directory lists his home as the Grand

Union Hotel.[28] He was not a member of the Ottawa Institute of Architecture during this period,[29] however, he is listed in the Manuscript Division of the Public Archives as an Ottawa architect and his drawings all dated 1885, form part of their collection.[30]

In figure (107) the cresting design looks similar to some previously examined, a Gothic arch with scrolled ends bordered by finials with a tri-leaf. Double patterning is used with a diamond motif and the crestwork is visible on some of the gables. The larger finials consist of scroll-work, balls and leaves, very similar to the finials on the Departmental Buildings. It is interesting to see the cresting detail actually on the architectural blueprint. The architect must have considered the effect of the cresting in the creation of his design. Adding the crestwork on several levels accentuates the broken roofline effect. As the design is full but tall, it assists the viewer in gazing up towards the top of the central pavilion.

Beckett also drew plans for a less grandiose house with a mansard roof, columned window trim and patterned brick work. (Fig. 108). Cresting decorates the roof and balconnettes and the detail is unusual and very geometric. There are several levels of double patterning and the central motifs consist of circles pierced by diagonal lines, which meet with other diagonal lines to form a triangle. A similar motif of the pierced circle was found in the Centre Block cresting, but the Parliament design flows much more and is not so rigid. The finials incorporate scroll-work and an arrowhead near the top.

This crestwork differs from the pattern in the previous Beckett design. It seems to be an unusual choice for a house as most ironwork has consisted of variations of hearts, flowers, gothic arches and scroll-work. However, the amount of the detail on the two drawings proves that this is not simply a case of indicating plans for the cresting, with details to be provided later. Beckett must have wanted the specific cresting designs indicated on both blueprints.

As the roofline has not been broken by pavilions in figure (108), the cresting works to achieve this. The design is cut at different intervals by the large finials. Such a linear

and vertical design focuses attention upwards. The arrow motifs aid in this as well.

Two other drawings for residences by Beckett have survived. (Figs. 109 and 110). While it is difficult to distinguish the detail of the architectural design, fortunately the cresting is clear. The actual crestwork is the same for both houses, a Gothic arch motif with scrolled ends separated by finials with arrowheads. The Bicknell pattern book shows similar designs, both more and less ornate than Beckett's. The only difference between Beckett's two patterns are the finials. While both have scroll-work, one displays a diamond motif while the other one does not. In both cases, the cresting provided the only excitement in the roofline. The drawings indicate other decorative touches were destined for the homes such as patterned stonework and window details, but neither were as ornamental or decorative as the cresting itself.

Unfortunately, most of the cresting and as well as the buildings discussed in this chapter, are no longer around today. While knowledge of such works has been limited to photographs and newspaper articles, it is obvious that the use of cresting during the latter half of the Nineteenth century in Ottawa was a widespread phenomenon. This type of ornamental ironwork decorated homes, commercial establishments, social services, churches, public and private institutions, as well as buildings constructed by the three levels of government.

NOTES

Chapter IV

1. C.J. Taylor, Some Early Ottawa Buildings, National Historic Parks and Sites Branch, Manuscript Report, no. 268, (Parks Canada, 1975), p. 12.

2. Ibid., p. 26.

3. Christina Cameron and Janet Wright, Second Empire Style in Canadian Architecture,(CHS) Occasional Papers in Archeology and History, no. 24, (Ottawa: published by Parks Canada, 1980), p. 100.

4. Dominion Illustrated, "The Dominion Illustrated Devoted to Ottawa and the Parliament of Canada", (Montréal, 1978), p. 121.

5. Susan and Michael Southwork, Ornamental Ironwork, (Boston: published by David R. Godine, 1978), p.p. 44 and 45.

6. Michael Newton, Lower Town Ottawa, Manuscript Report 106, (Ottawa: published by Heritage Section, Public Activities Branch, National Capital Commission, 1981), vol. 2: 1854-1900, p.206.

7. See Chapter I, table showing association between iron and lumber industries.

8. Article on "Ottawa Buildings", Ottawa Citizen, December 6, 1875.

9. Ibid.

10. Article of the "Waterworks", Ottawa Citizen, June 20, 1872.

11. C.J. Taylor, Some Early Ottawa Buildings, National Historic Parks and Sites Branch, Manuscript Report, no. 268, (Parks Canada 1975), p. 190.d

12. Ibid.

13. Canadian Architect and Builder, (Toronto), April 1888 issue.

14. C.J. Taylor, Some Early Ottawa Buildings, National Historic Parks and Sites Branch, Manuscript Report, no. 268, (Parks Canada, 1975), p. 23.

15. Michael Newton, historian at the National Capital Commission, Ottawa, has found a reference to the Vulcan Foundry's work for St. Alban's the Martyr. This notation comes from the Buildings Committee's Minutes of the Church of St. Alban's the Martyr, which Mr. Newton has been able to study. These minutes are now the property of the Anglican Church Diocese of Ottawa.

16. There is no notation on the photograph, but Mr. Tiggs, curator of the Notman Archives at the McCord Museum, Montreal, has dated it circa 1870.

17. Microfiche on St. Alban's the Martyr Church, City of Ottawa Archives.

18. Article on "Christ Church", Ottawa Citizen, October 29, 1872.

19. Article on "St. Joseph's Church", Ottawa Citizen, November 18, 1893.

20. C.J. Taylor, Some Early Ottawa Buildings, National Historic Parks and Sites Branch, Manuscript Report, no. 268, (Parks Canada, 1975), p. 14.

21. Carol Sheedy, L'Architecture Domestique et la Decoration de la Cote de Sable au 19e siècle, (M.A. History Thesis, University of Ottawa, 1980), p. 3.

22. C.J. Taylor, Some Early Ottawa Buildings, National Historic Parks and Sites Branch, Manuscript Report, no. 268, (Parks Canada, 1975), p. 16.

23. Ibid., p. 22.

24. Ibid., p. 25.

25. Ibid., p. 28.

26. Ibid., p. 25.

27. Canadian Architect and Builder, (Toronto), December 1888 issue.

28. Ottawa City Directory 1888-1889, (Ottawa: published by A.S. Woodburn, 1888), p. 120.

29. Canadian Architect and Builder, (Toronto), March 1889 issue.

30. PAC, W.F. Beckett, National Map Collection, NMC 78492-78495.

CONCLUSION

The Ottawa of today has a very different character from the city of the latter half of the Nineteenth century. Many of the buildings which reflected the spirit of Picturesque Eclecticism with its varied angles and visually expressive ornamentation no longer exist. Not surprisingly then, there are very few examples of Nineteenth century cresting which still decorate Ottawa rooftops. No doubt the elements took their toll but as with everything else, ornamental crestwork fell prey to changes in taste which included architectural styles.

The most prominent change came in the form of the Beaux-Arts style which came at the end of the Nineteenth century and beginning of the Twentieth century and was based on the architectural theories of the École de Beaux-Arts in Paris. The goal of Beaux-Arts was to restore the correct use of classical and later a wider range of historical styles.[1] The École placed emphasis on drawing techniques based on analytical research and theoretical constructions of classical remains.[2] A strict interpretation of classical models including ornamentation was advocated by the École, but there were opportunities to introduce new ornamental motifs without violating basic concepts.[3] Benjamin Henry Latrobe had done just that with the creation of two new orders for the United States Capitol: one with ears of corn, the other with tobacco leaves.[4]

The move towards the Beaux-Arts style in Canada was led by the architect John M. Lyle (1872 - 1945), a graduate of the École in Paris, who had been influenced by "American" Beaux-Arts during an apprenticeship in the United States.[5] Lyle believed that "through the application of ornament, Beaux-Arts could visually express the nature of the building's function or purpose.[6] He spent three years compiling a repertory of motifs from flora, fauna and economic life, which comprised a new and typically Canadian "order" suitable for Beaux-Arts architecture in Canada.[7]

The result was an entirely modern style that perpetuated the traditional importance of ornament in a novel way. Ottawa boasted two prominent examples of this new style.

Lyle was the architect for the Bank of Nova Scotia (1923) which was one of the finest and purest interpretation of classicism [8] and the Chateau Laurier (1912) modelled on the French Chateaux of the Sixteenth century, was designed by Bruce Price.[9] (1845 - 1903)

Canadian architectural styles continued to be affected by European trends. Such influences had been instrumental in creating Canada's national style of Picturesque Eclecticism which had been adopted so wholeheartedly by Ottawa.

First, the arrival of British architects in Canada sensitized Canadians to the architecture of the Picturesque. Secondly, both the Catholic and Anglican churches promoted the use of the Gothic Revival in this country and British and French, as well as other European immigrants, imported contemporary architectural ideas to their new home which included the styles of Second Empire and Italianate.

Canada's neighbour to the south also provided classical architectural inspirations and for those who did not travel, pattern books displayed many designs. Even Canadian publications such as The Canada Farmer showcased architectural plans for simple homes and churches of various types.

All these factors no doubt aided in popularizing these styles and in developing the trend towards Picturesque Eclecticism, which enabled an individual to select stylistic elements from the past and mix them to create a unique and visually exciting form of architecture. An extremely important part of this picturesque effect was the use of ornamentation and more particularly, iron cresting. Once the Parliament Buildings had been built, they became the influence for a national building style and with it the practice of adorning rooftops with cresting was firmly established.

The practice of using cresting for ornamental expression was taken up with a fervor in Ottawa, judging from the number of known examples and the variety of types of buildings that displayed it. But it also seems that cresting was used in this particular city for more than just decorative purposes. The Parliament Buildings were a culmination of

the present accomplishments of Canadians with a hope for an even greater future. By nature, the cresting acts as a border between heaven and earth and links the two together. In this case, it emphasized the symbolism of the Parliament Buildings, a new political system and a country with unlimited opportunity. In addition, the fact that the crestwork here was painted blue tipped with gilt suggests that it had more of a philosophical purpose, as those two colours are associated with stars and heaven.

While most buildings had cresting, little importance was placed on the use of ornamental iron fencing. While the well-to-do in Montréal and Toronto frequently had ornate gates, the Ottawa wealthy did not often concern themselves with fences at all. On many architectural examples, there is already so much ornamentation and the angles are varied to break the roofline, creating a highly picturesque effect. The cresting in terms of decoration is really not required and there was a conscious effort made to display it.

The philosophy behind Picturesque Eclecticism was adapted to Ottawa cresting design, that of mixing elements from different styles to create a personal statement. As with architecture, many cresting motifs emulated those from Europe which people felt comfortable with or considered to be from home. In addition, the designs could be considered "imported" and therefore more impressive. The similarities between motifs used in Ottawa cresting and those shown in the catalogue pages of the various British foundries presented in this thesis are so striking that there is a definite relation. It is difficult to say exactly how these motifs arrived here, but certainly they were characteristics of the architectural styles that were imported to Canada. Ruskin's writings on ornamentation as well as architectural pattern books were available in Ottawa through the Library of Parliament. In addition, Viollet-Le-Duc's Dictionnaire Raisonné, which included a section on cresting, formed part of the collection and certainly the construction of the Parliament crestwork and finials followed much of his advice.

Although in Ottawa cresting, the same motifs are used over and over again and

while they are not new in an historical sense, the designs themselves or the combination of motifs form in most cases, an original presentation. This possibly also explains the enthusiasm for cresting.

Some motifs were extensively employed as Ottawa was developing into a prosperous town as a result of the business of government. The seat of government was there, which is opportunity and freedom personified, and the local cresting seemed to somehow incorporate this symbolism. It is not surprising that more often then not, the arrow motif reaching towards the sky, was part of the cresting design. Except for the different houses which shared common cresting and the bank and residence which also shared similar crestwork, the overall cresting designs have been novel.

It is unfortunate that there is very little material available on either the architects or the ironworkers which would help to shed light on the origins of the Ottawa designs. What information does exist suggests that there were very few ornamental ironworkers in Ottawa. It seems difficult to believe with the demand for crest work, but even those active in the Ottawa area also did other work or did not rely on the Ottawa market solely. With highly skilled craftsmen available a short distance away in Montréal and Toronto, there was strong competition. Even contracts for government work were not limited to Canada, let alone Ottawa.

A similar situation befell the iron products industry in Ottawa. Only a few survived into the Twentieth century, because they diversified into hardware and plumbing and expanded their markets while the others declined with the local lumber mills, on whose business they depended. In addition, we have seen how the iron mining industry around Ottawa never developed because of the failure to diversify into processing the ore, among other reasons.

None of the foundries or smithing concerns responsible for the Ottawa cresting are in existence today and little ornamental ironwork has survived, but the crestwork on the Parliament Buildings still remains. This example more than any other gives us an idea of

why Picturesque Eclecticism was so readily accepted by the city. Ottawa of the 1870's through to the 1890's was a city whose skyline was broken by enchanting patterns. Indeed it was a magical place, fitting for the capital of a new and dynamic nation.

NOTES

Conclusion

1. Geoffrey Hunt, Towards a Canadian Architecture - John M. Lyle,(Kingston: Agnes Etherington Art Centre, Queen's University, 1982) Exhibition Catalogue, p.20

2. Jean B. Weir, The Lost Craft of Ornamented Architecture,Canadian Architectural Drawings, 1850 - 1930,(Halifax: Dalhousie Art Gallery, Dalhousie University, 1983), Exhibition Catalogue, p.19

3. Ibid., p.20

4. Ibid.

5. Geoffrey Hunt, Towards a Canadian Architecture - John M. Lyle,(Kingston: Agnes Etherington Art Centre, Queen's University, 1982), Exhibition Catalogue, p.18

6. Ibid., p.15

7. Jean B. Weir, The Lost Craft of Ornamented Architecture, Canadian Architectural Drawings, 1850 - 1930, (Halifax: Dalhousie Art Gallery, Dalhousie University, 1983), Exhibition Catalogue, p.20

8. Ibid.

9. Alan Gowans, Building Canada - An Architectural History of Canadian Life, (Toronto: University of Oxford Press, 1966), p. 137.

Illustrations

ig. 1.

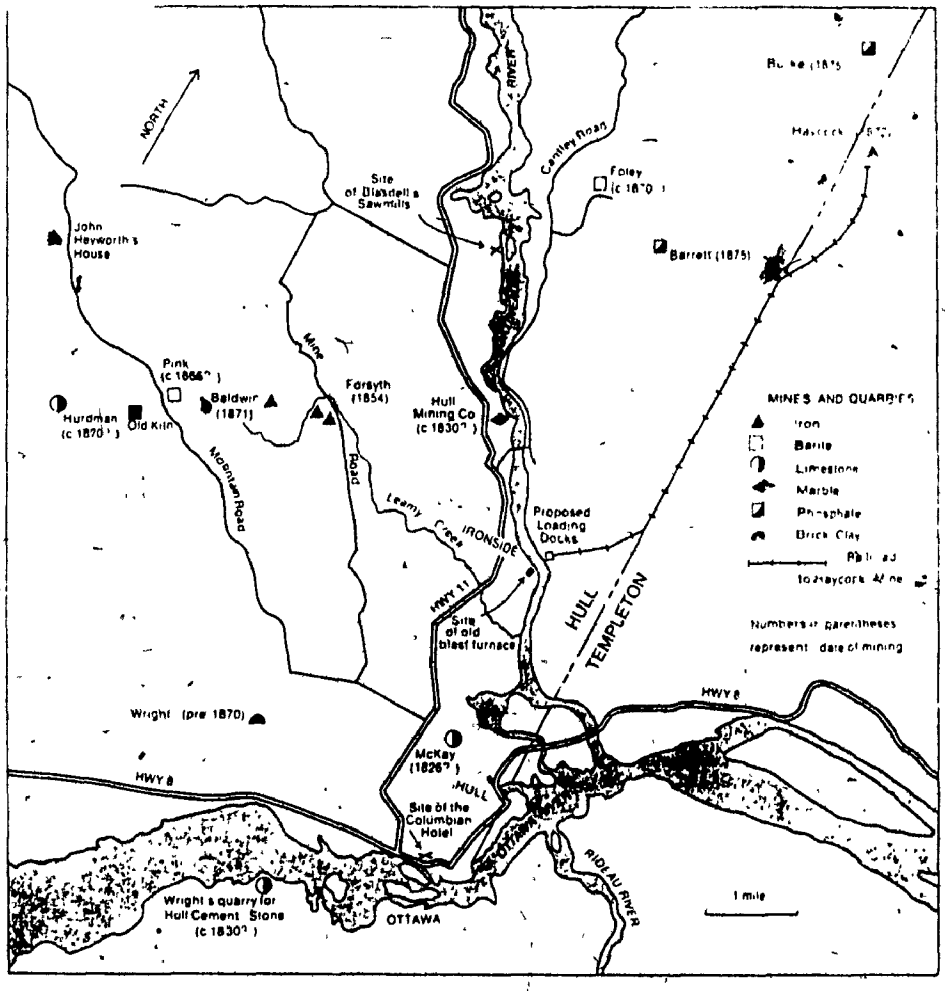
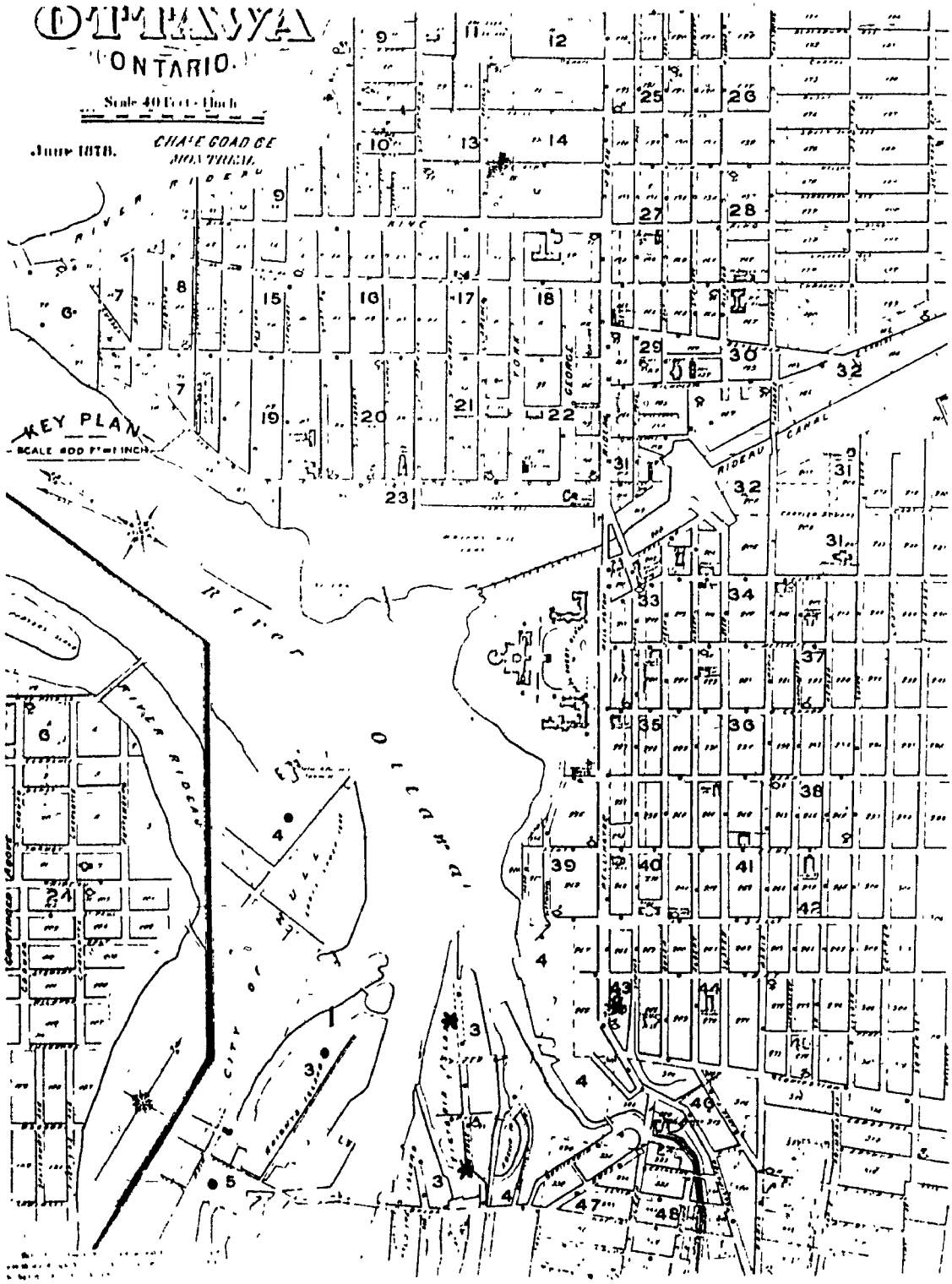

NORTH
Site of Blasdell's Sawmills
Foley (c 1870)
Barrett (1875)
John Heyworth's House
Pink (c 1866)
Baldwin (1871)
Hurdman (c 1870)
Old Kiln
Forsyth (1854)
Hull Mining Co (c 1830)
Mountain Road
Leamy Creek
IRONSIDE
Proposed Loading Docks
HULL
TEMPLETON
HWY 11
Site of old blast furnace
MINES AND QUARRIES
Iron
Barite
Limestone
Marble
Phosphate
Brick Clay
Numbers in parentheses represent date of mining
Wright (pre 1870)
HWY 8
McKay (1826)
Site of the Columbian Hotel
Wright's quarry for Hull Cement Stone (c 1830)
OTTAWA
RIDEAU RIVER
1 mile

Fig. 2.



Lumber Yards, Sawmills

A.H. Baldwin, 3 •
J.R. Booth, 3,4 •
E.B. Eddy, 3,4,5 •

Foundries

A.H. Baldwin, 3 *
N.S. Blasdell, 3 *
Alex. Fleck, 43 *

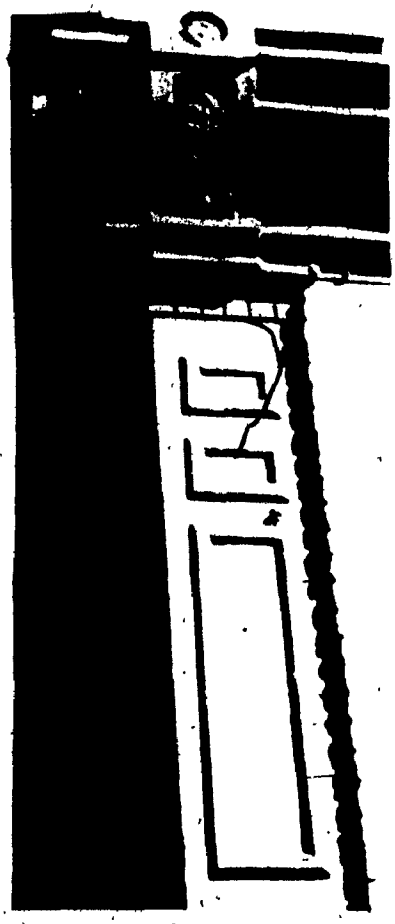


Fig. 3a.

Fig. 3b..

THE EAST LYNN IRON WORKS OF S. GRAHAM

fig. 4.

ALEXANDER FLECK,

VULCAN IRON WORKS.

Iron Founder and Machinist.

STEAM ENGINES MADE TO ORDER.

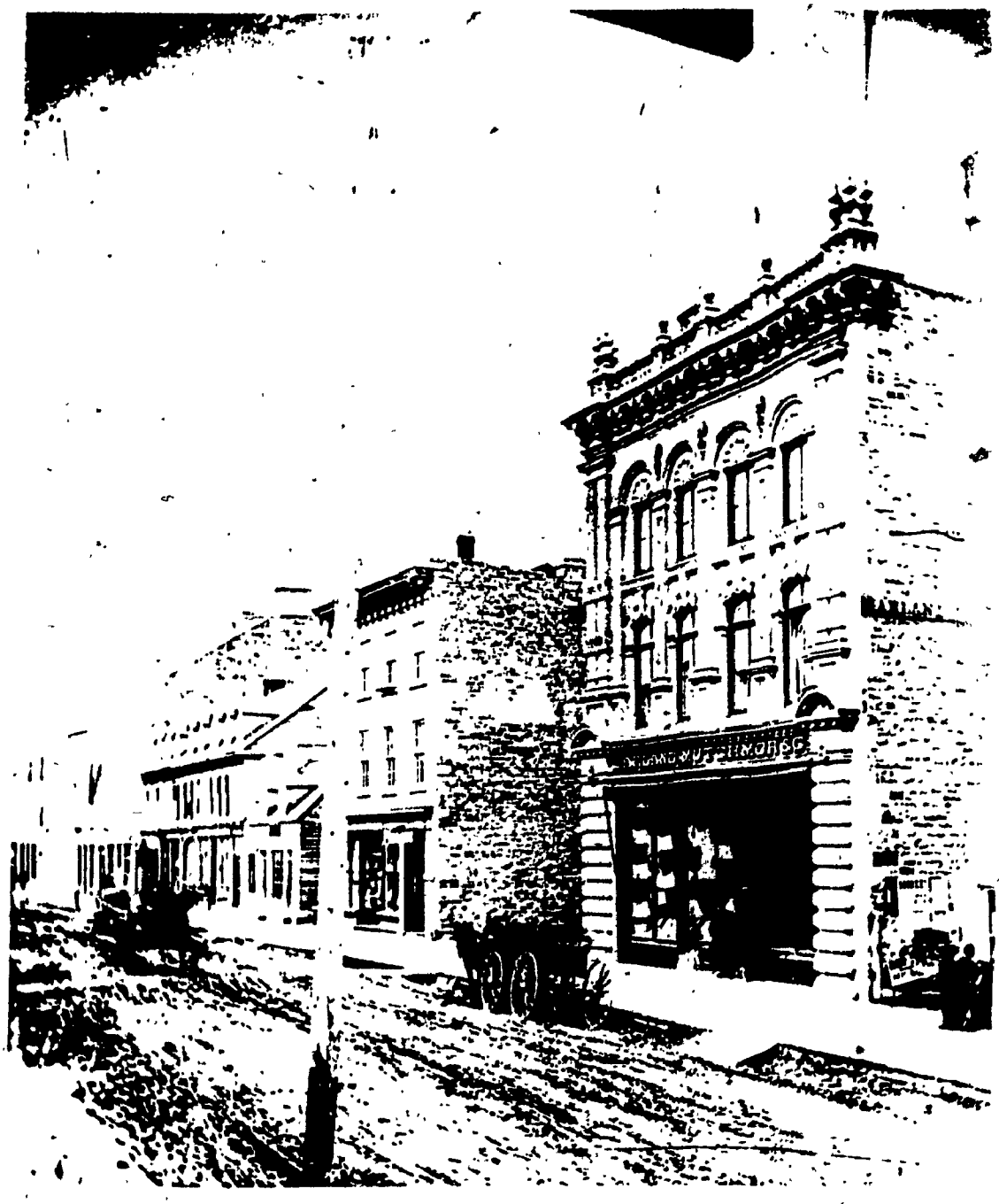
IRON CASTINGS.

ALL KINDS OF MACHINE WORK DONE ON THE MOST REASONABLE TERMS.

WELLINCTON STREET, S. S.,

OTTAWA.

Fig. 5.



To the Minister of Agriculture
(Trade Mark and Copyright Branch)
Ottawa.

I, Joseph R. Smith, being a resident of Canada and now residing in the City of Ottawa in the Province of Ontario, hereby declare that I am the proprietor of the Industrial Design of which duplicate copies are herewith forwarded and which consists of a section of ornamental wrought iron work suitable for fencing or for creating for the sides of buildings, particularly should the same design be followed in cast iron. The particular design being shown in the blue print duplicates of which are attached to the duplicates of this application one of which here follows, to wit:

Fig. 6a.

And I hereby request that the said Industrial Design be registered in accordance with the law. I forward herewith the fee of Five Dollars in accordance with section 26 of the Trade Mark and Design Act.

In testimony thereof I have signed in presence of the two undersigned witnesses at the place and date hereunder mentioned.

Ottawa 1st May 1892

Joseph R Smith

Witnesses:
Allen B. Ingalls
Thomas J. Kennedy

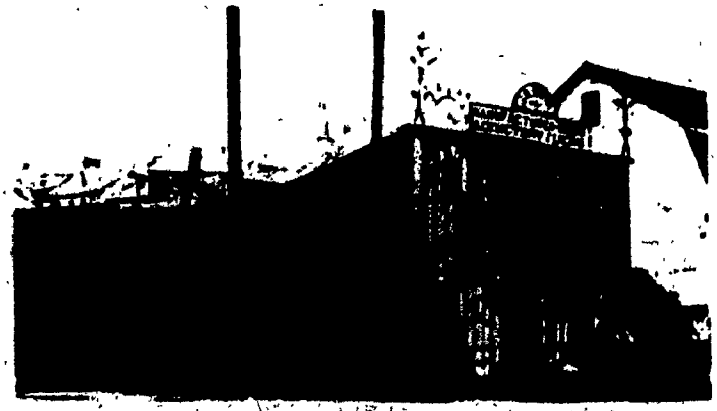


Fig. 6b.

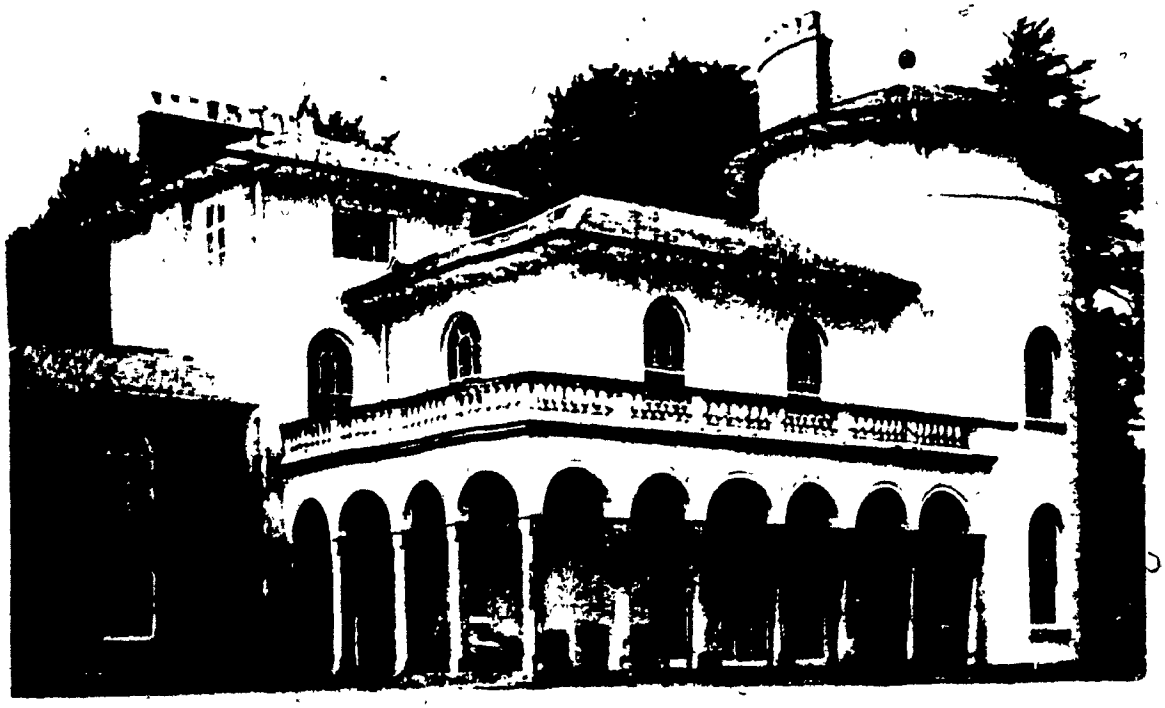


Fig. 7a.

Fig. 7b.

Fig. 8.

Fig. 9.

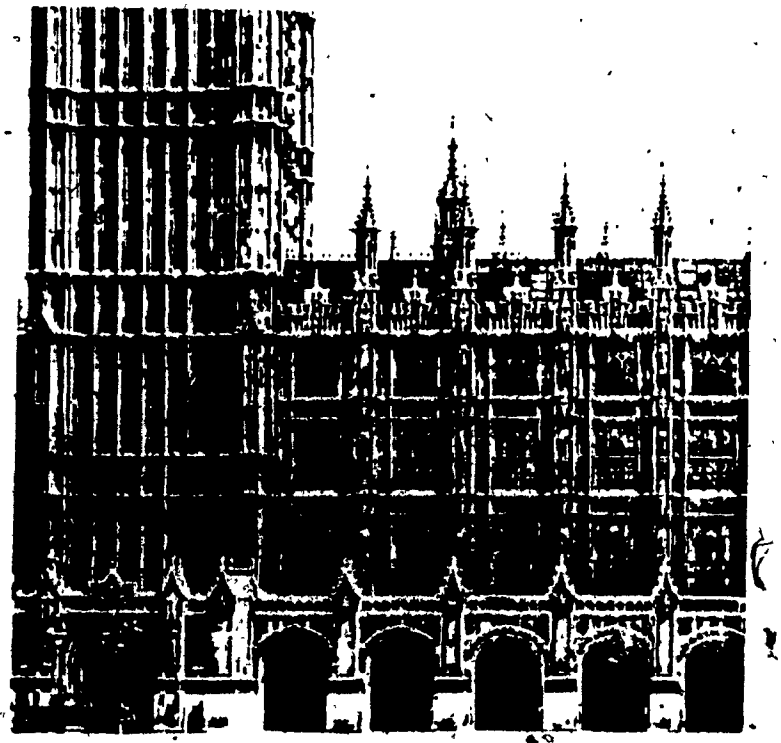


Fig. 10a.

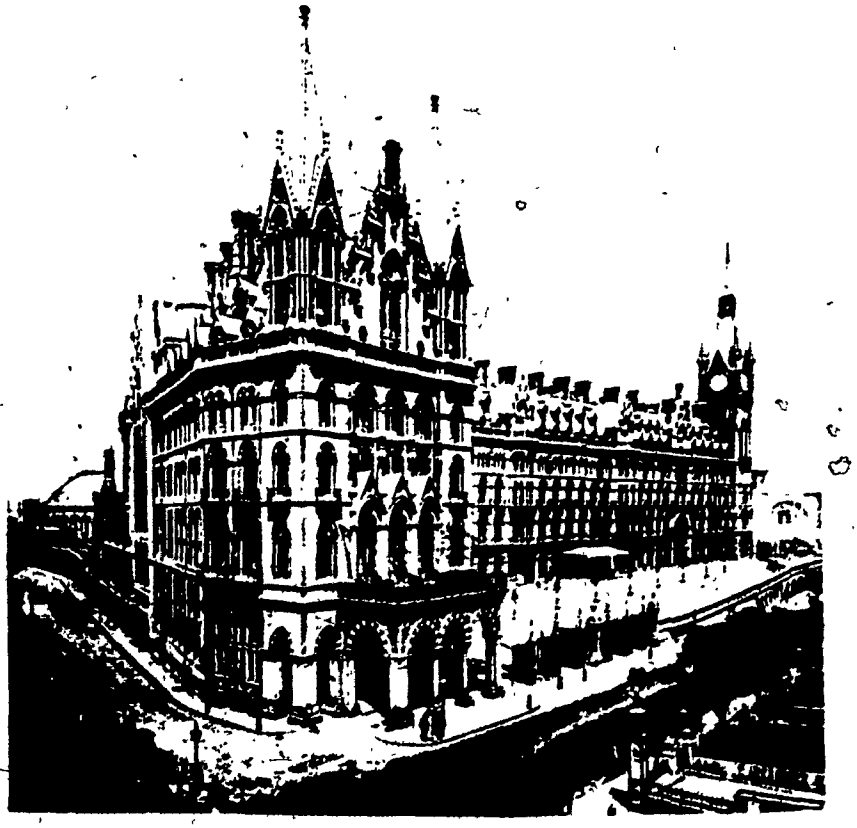


Fig. 10b.

Fig. 11.

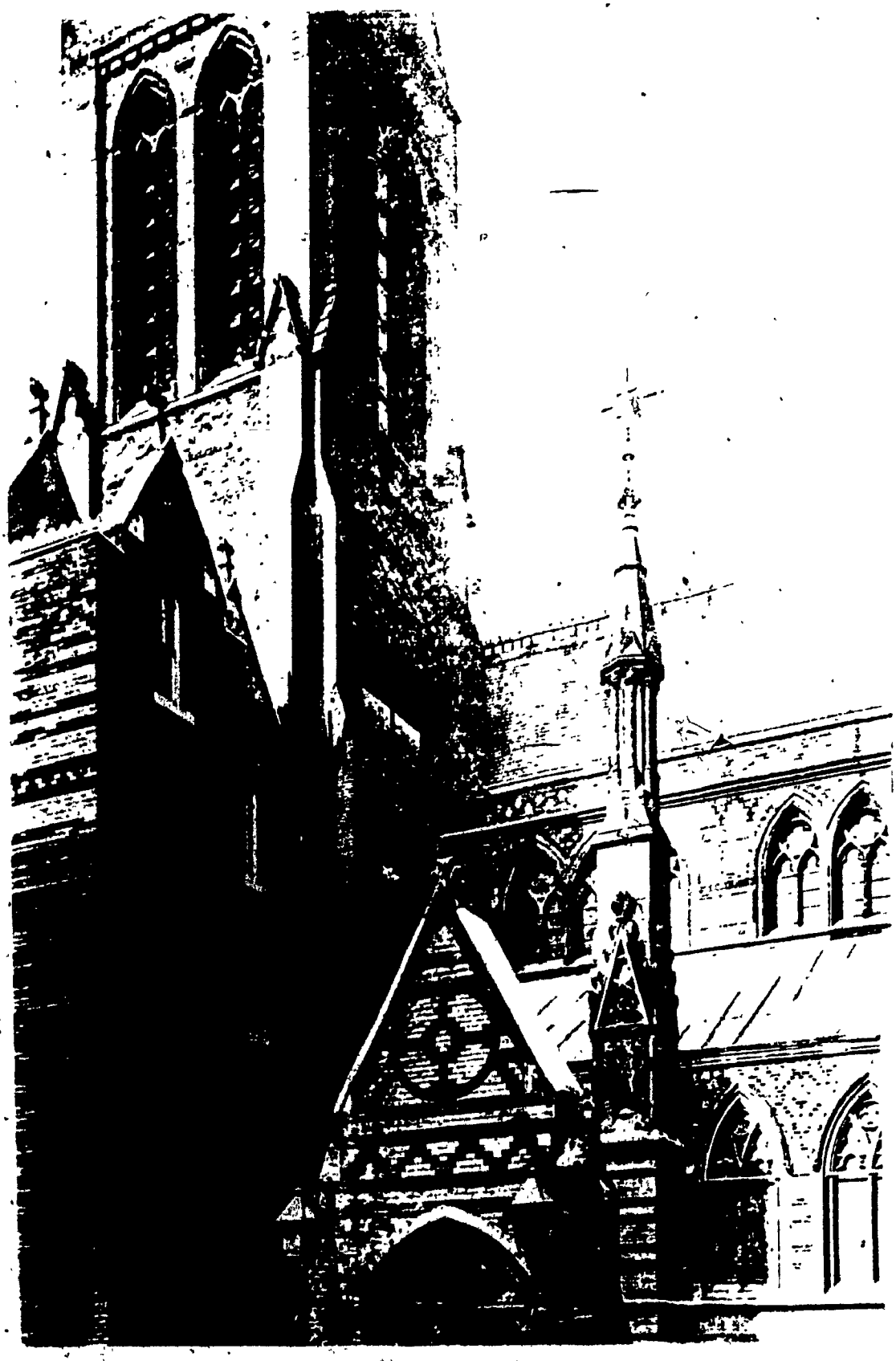


Fig. 12a.

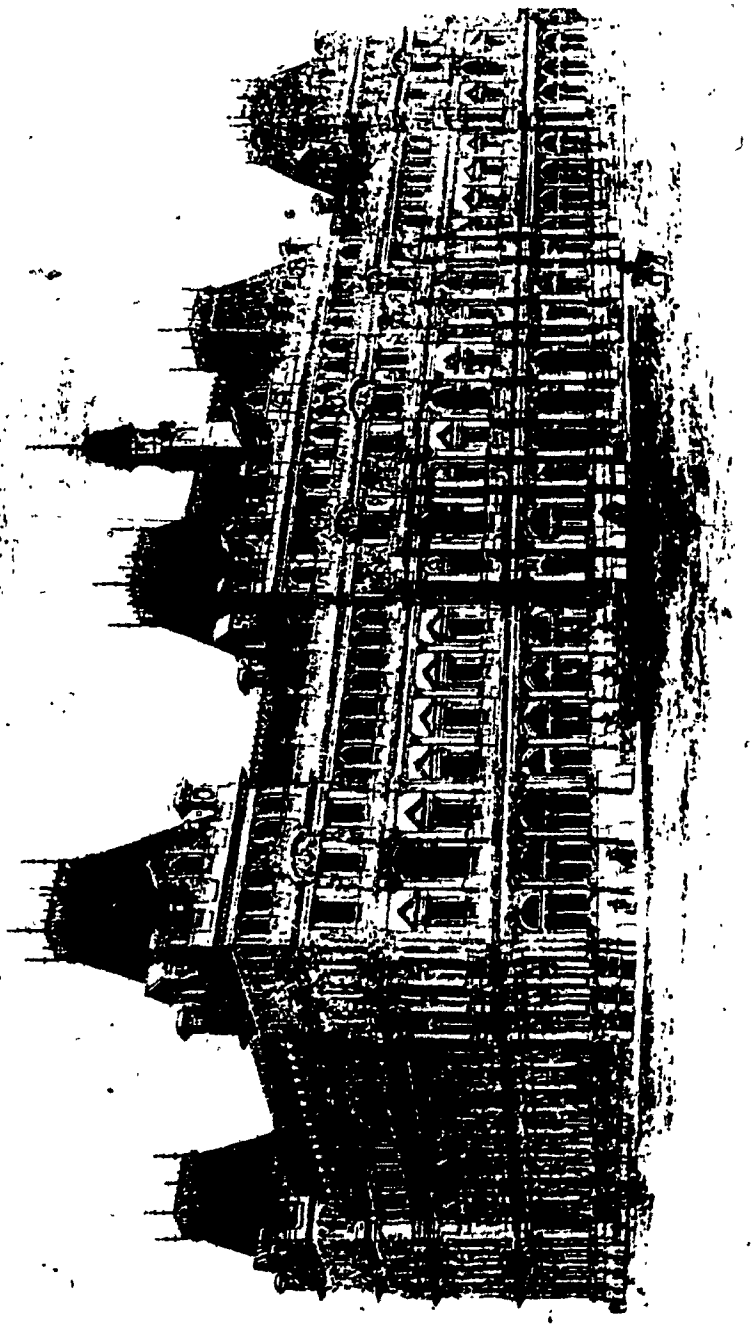


Fig. 12b.

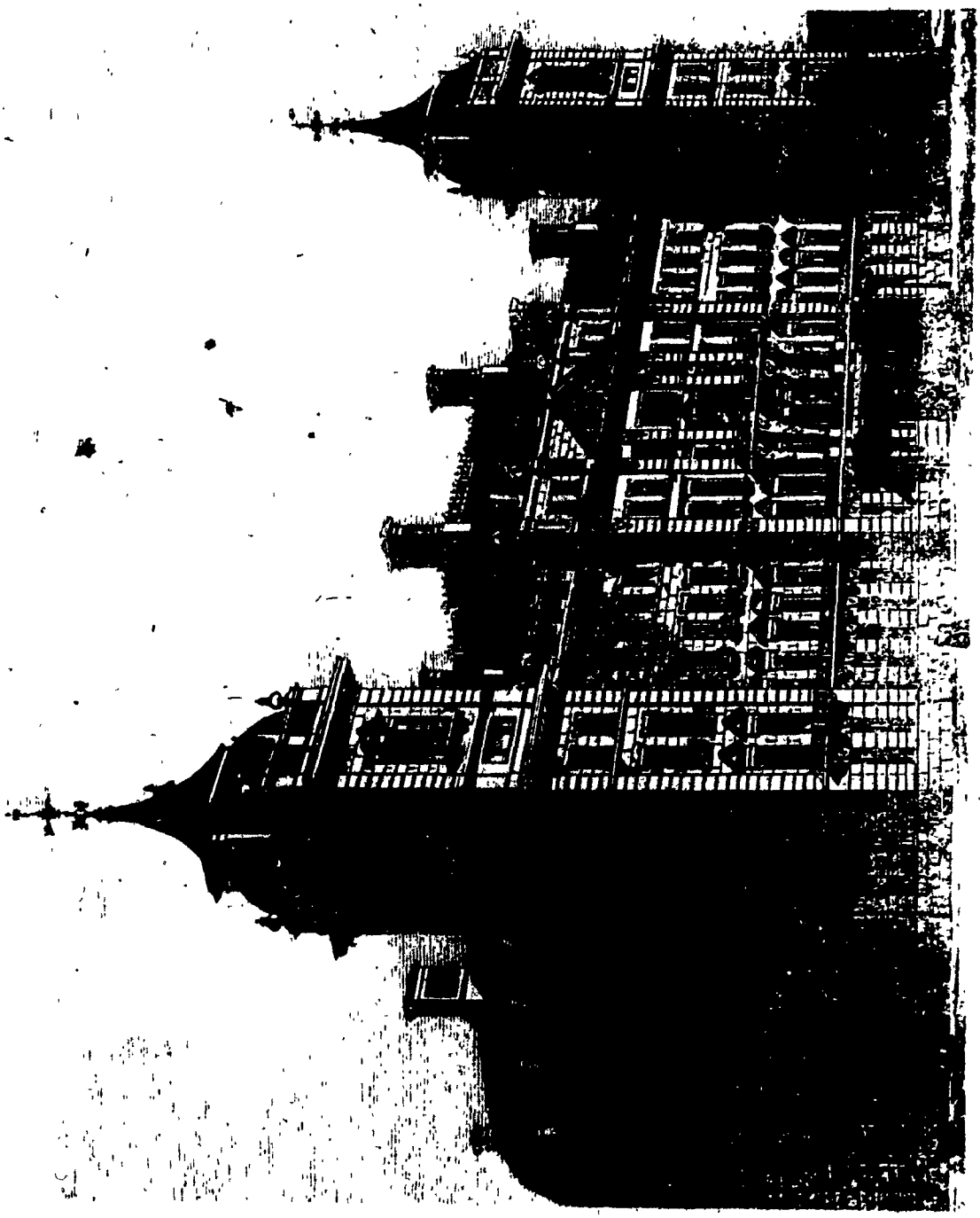
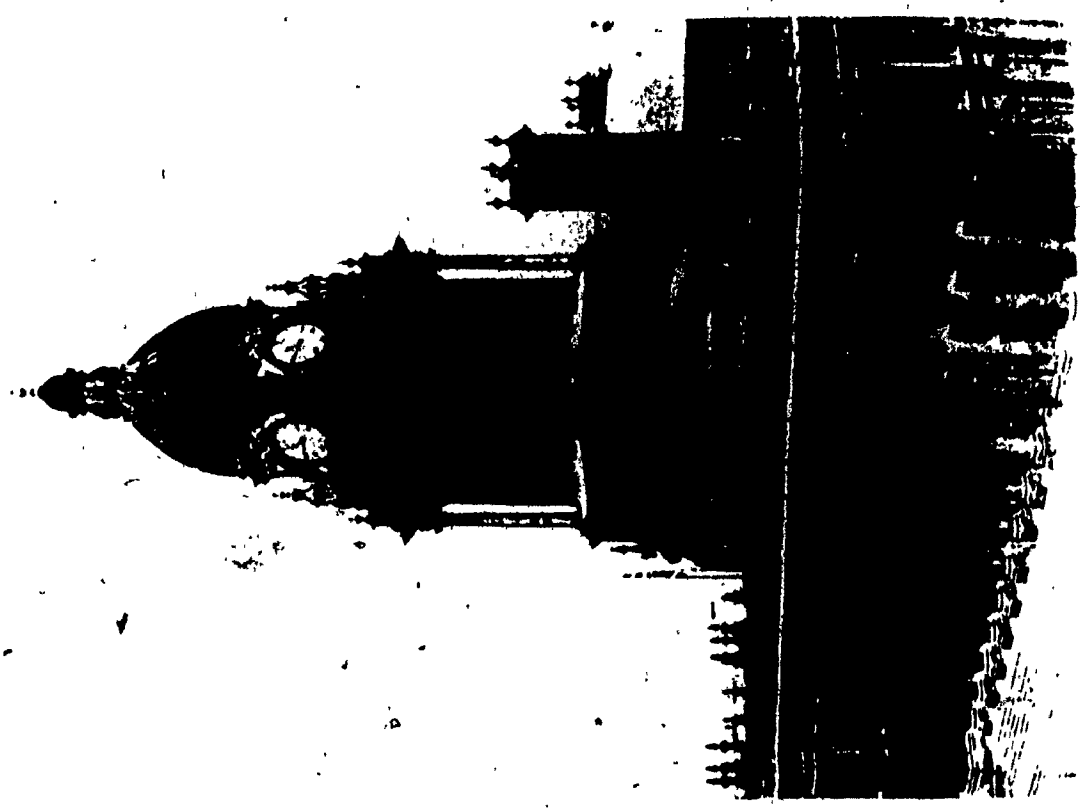


Fig. 13a.



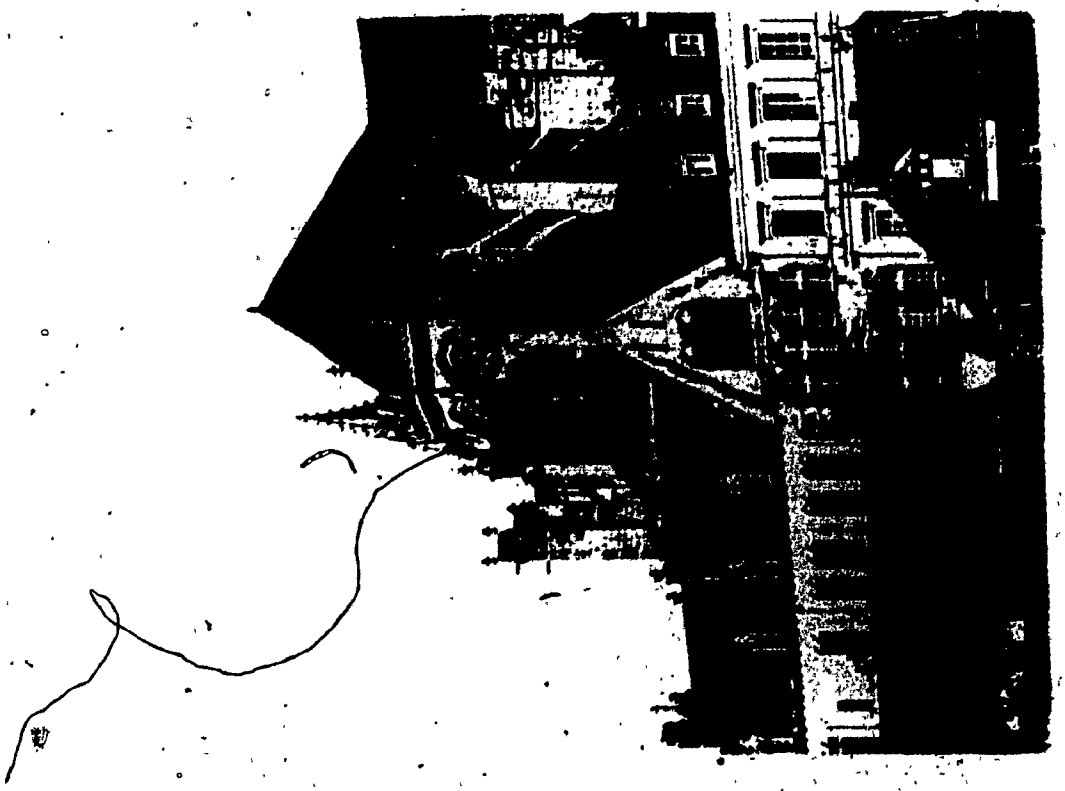


Fig. 13b.

Fig. 14.

Fig. 15.

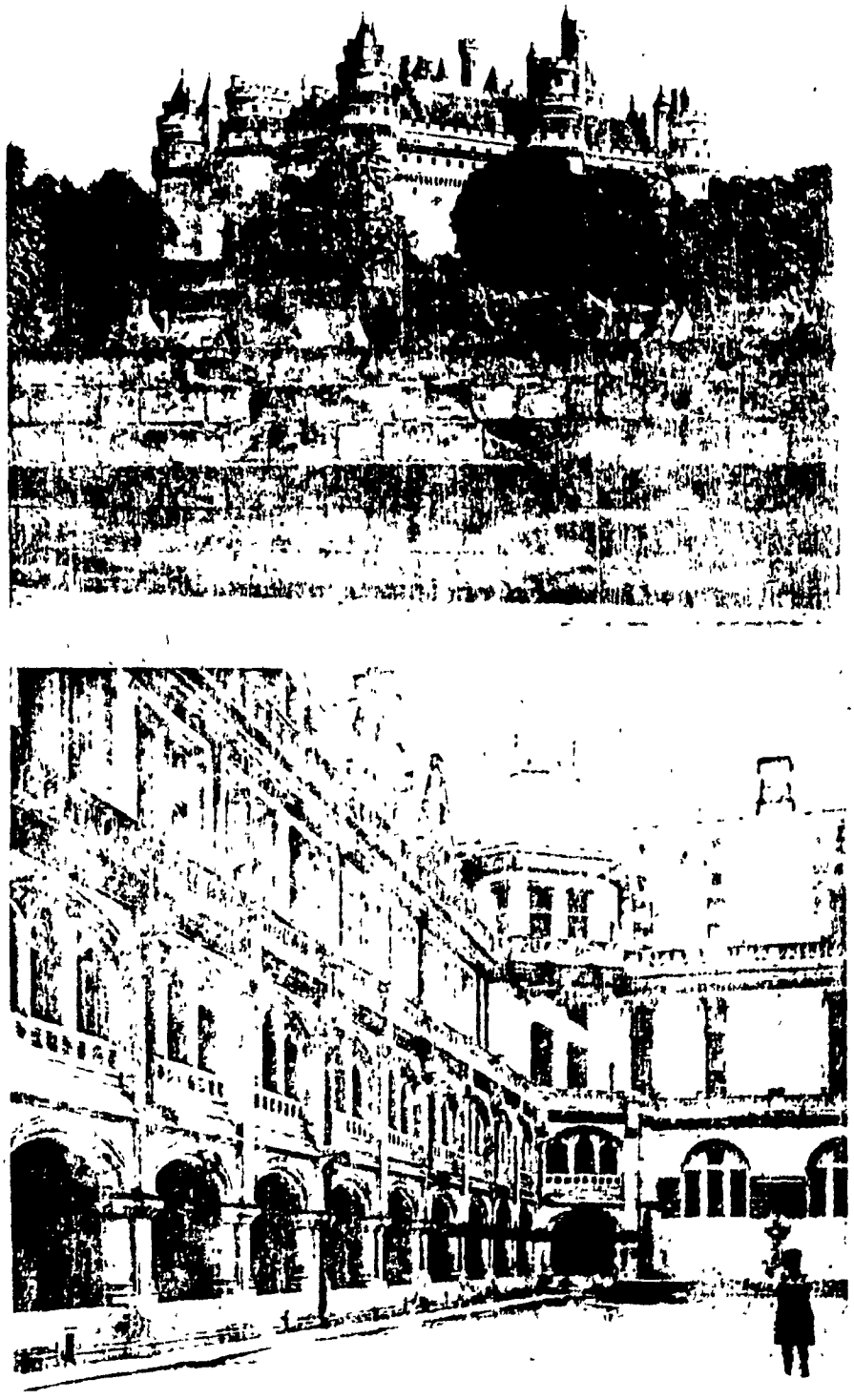


Fig. 16.

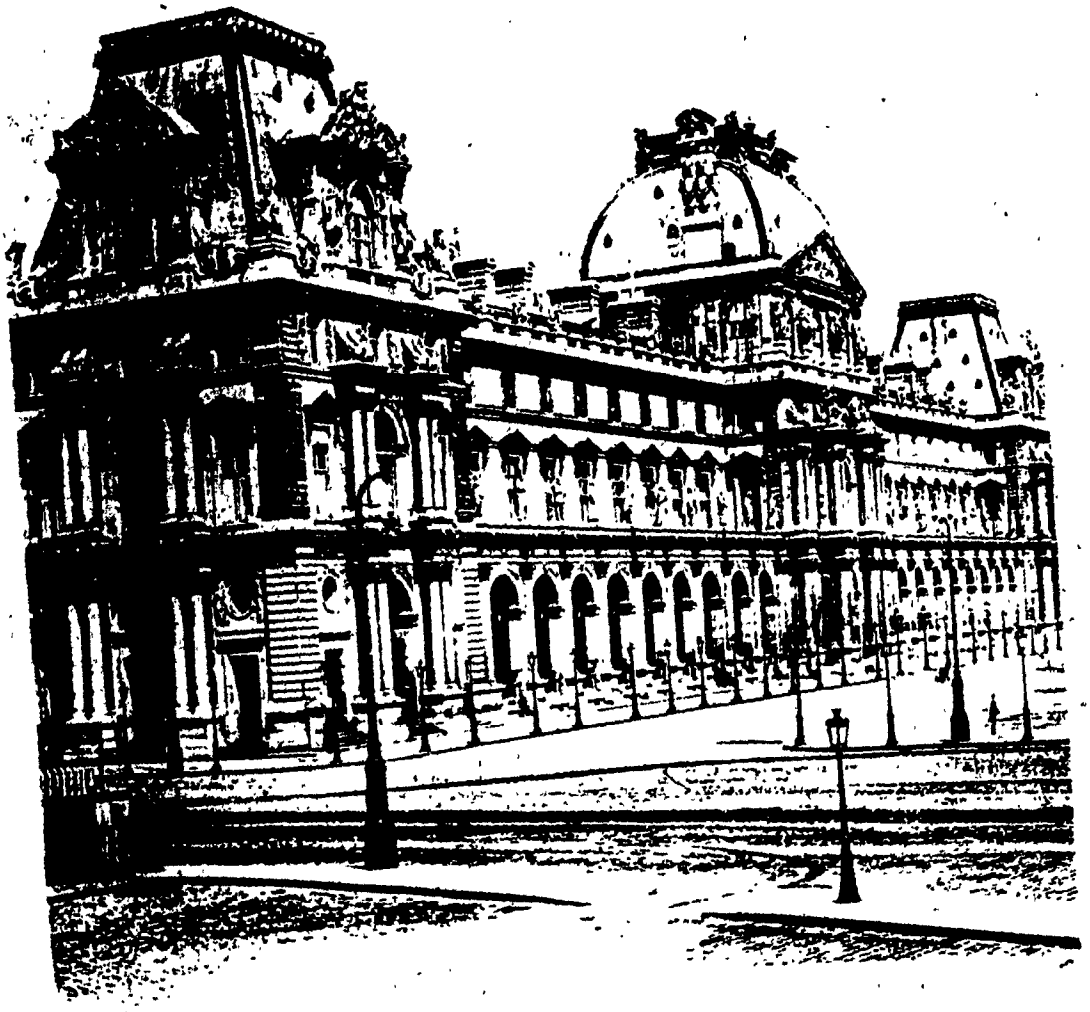
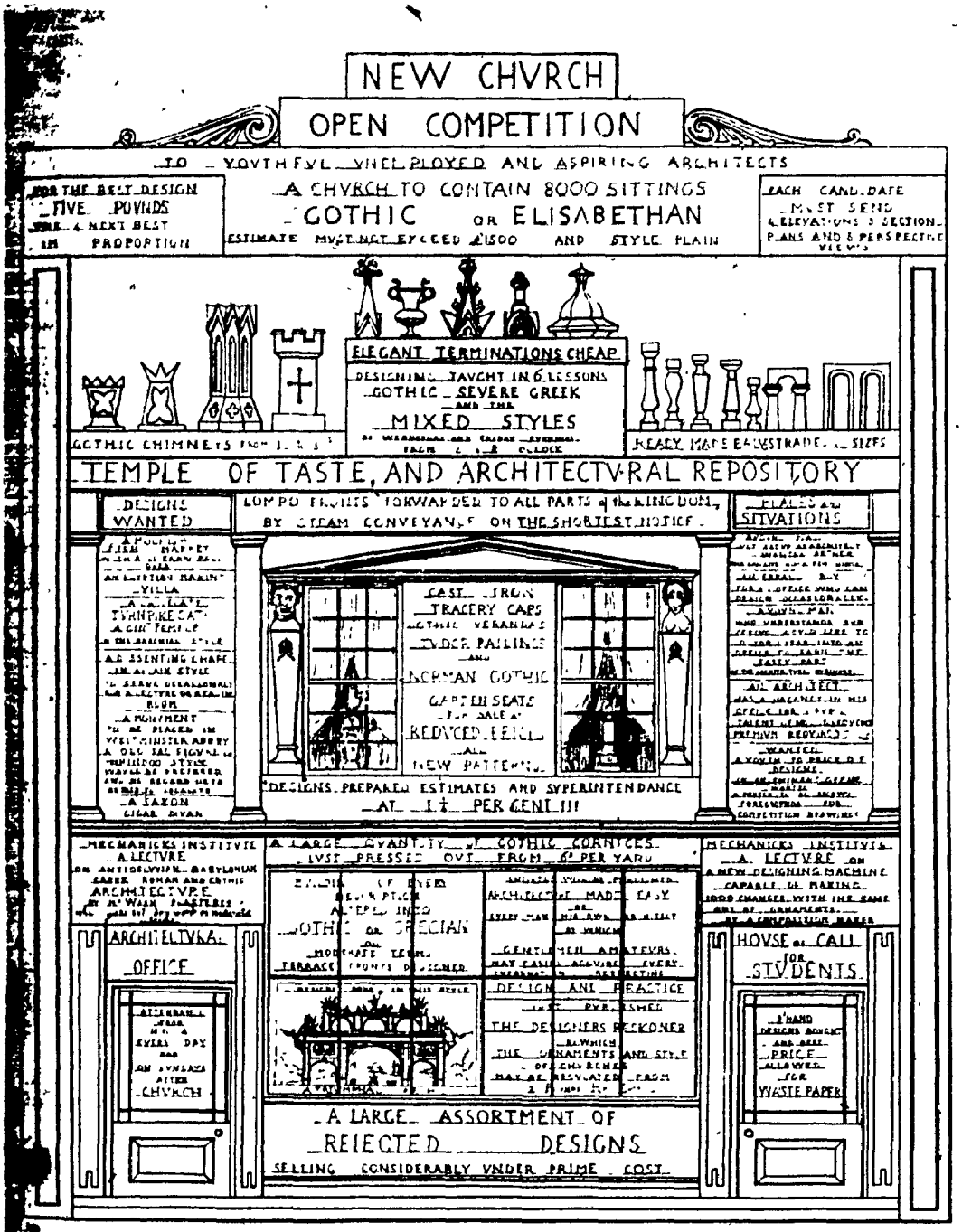


Fig. 17a.

Fig. 17b.

Fig. 18.



THIS ILLVSTRATION
OF THE PRACTISE OF ARCHITECTVRE IN THE 19 CENTVRY ON NEW IMPROVED AND CHEAP PRINCIPLES
IS DEDICATED WITHOVT PERMISSION TO
THE TRADE

Fig. 19a.

Fig. 19b.

Fig. 20.

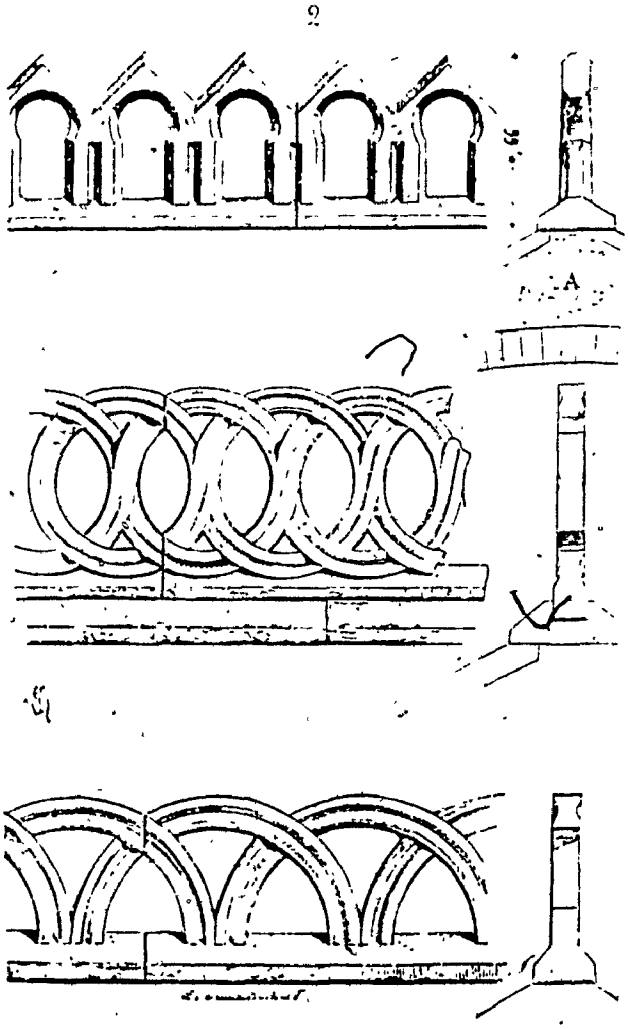
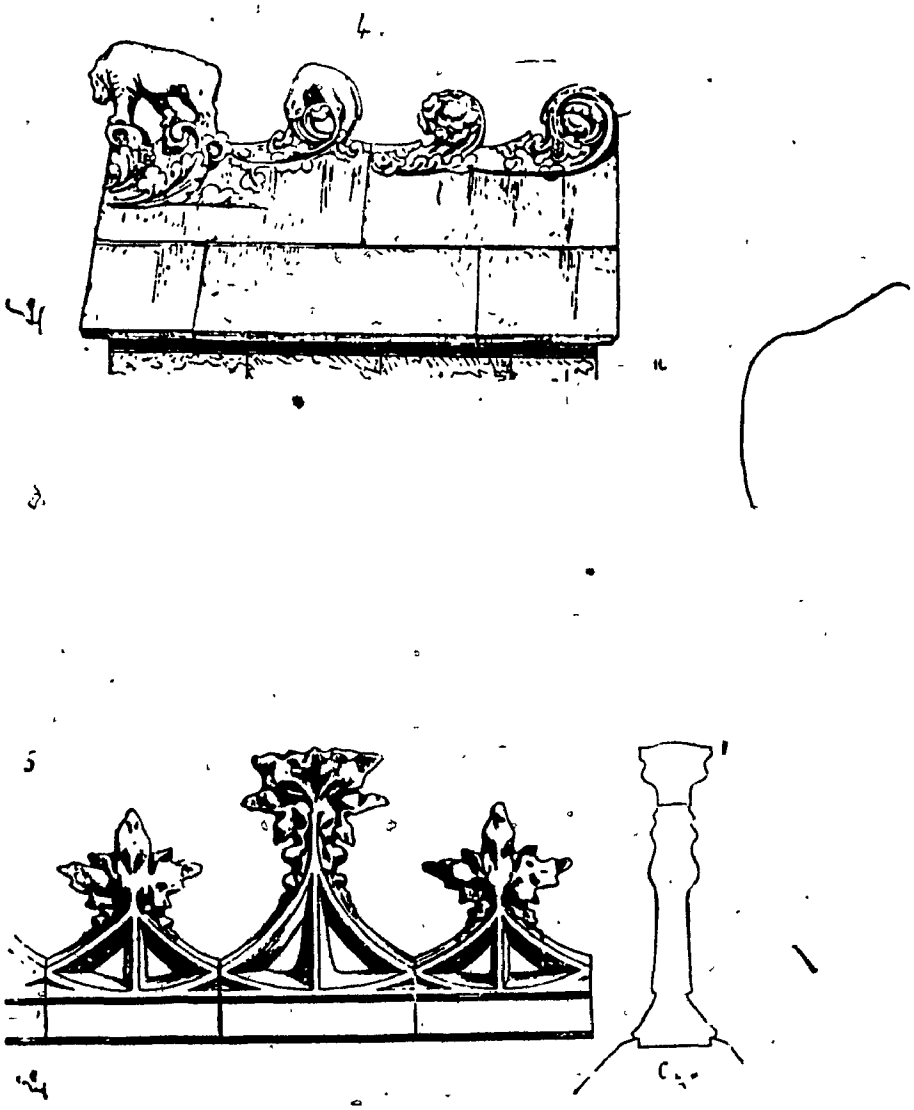


Fig. 21.



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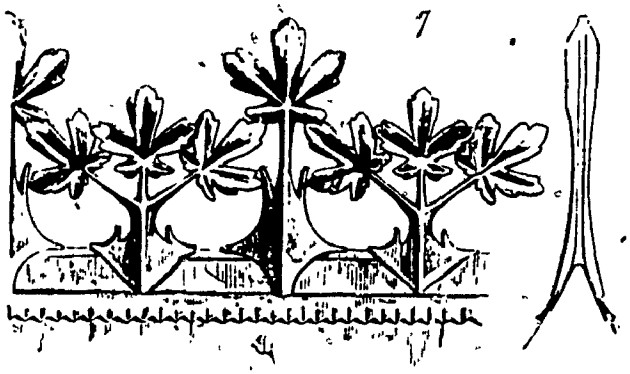


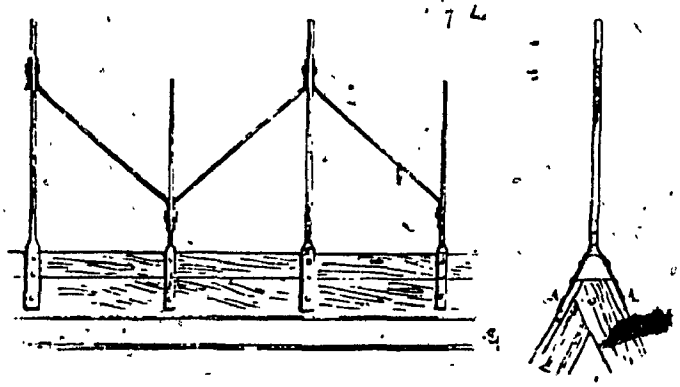


Fig. 23a.

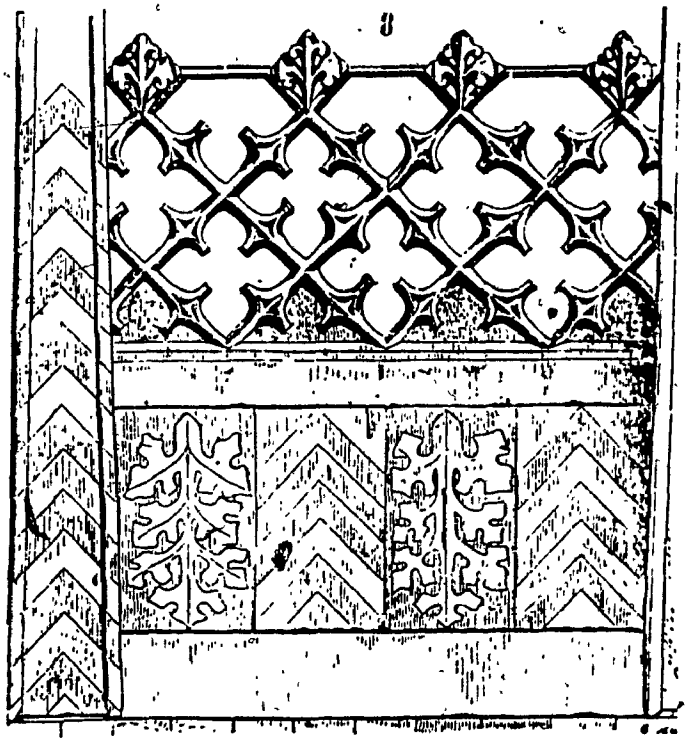


Fig. 23b.

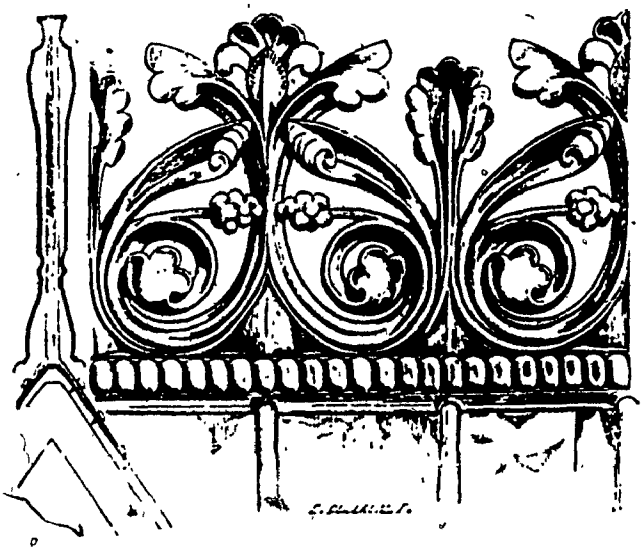


Fig. 24a.

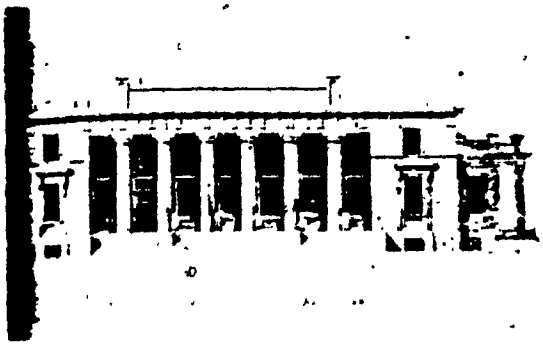


Fig. 24b.

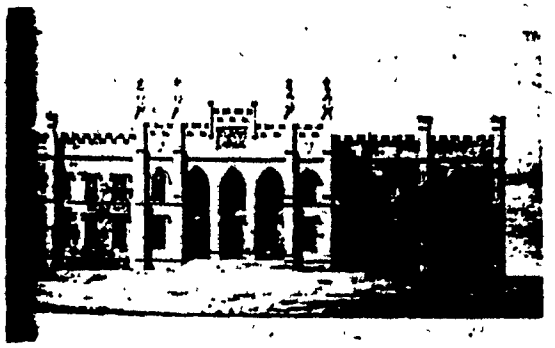


Fig. 25.

Fig. 26.

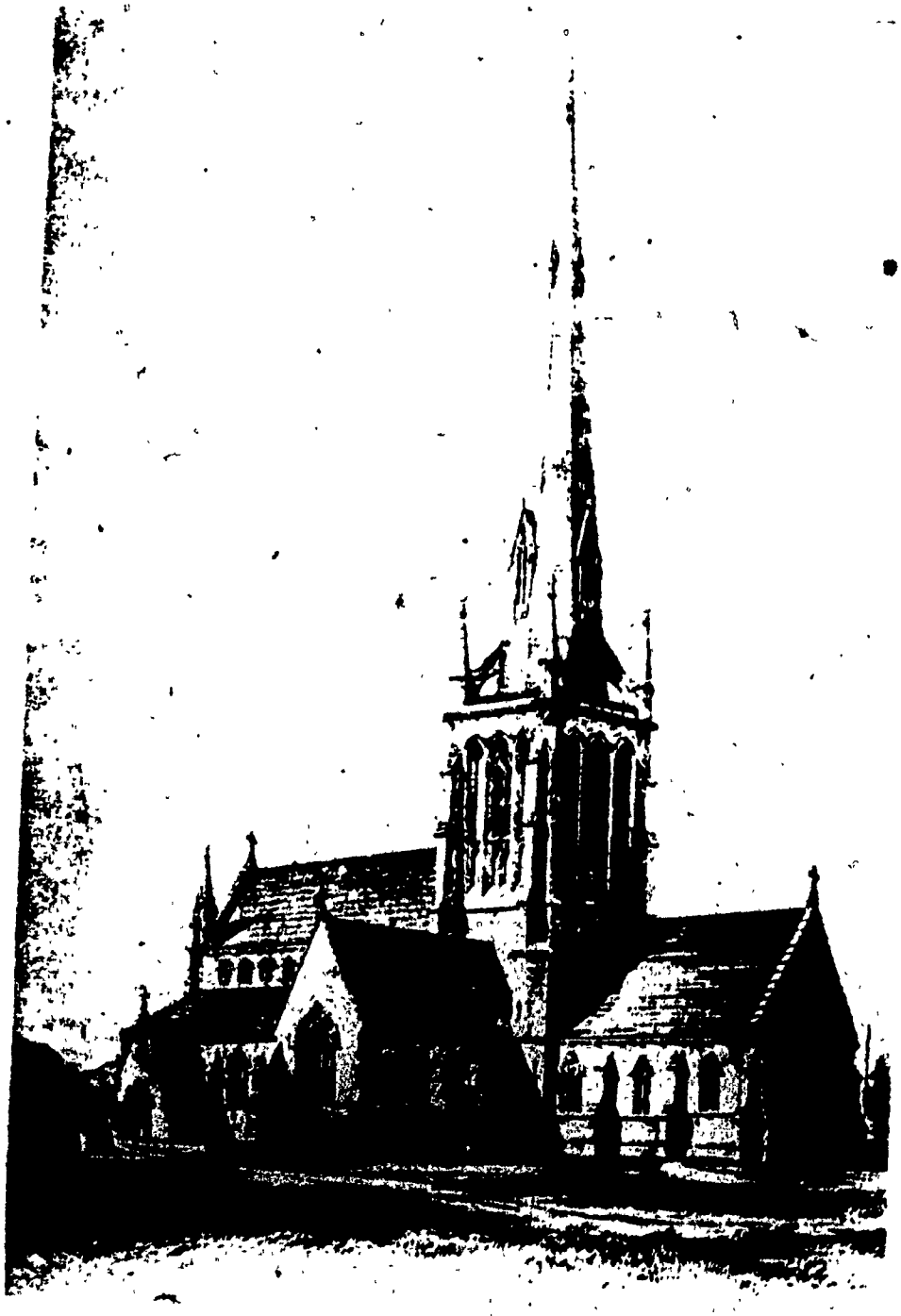


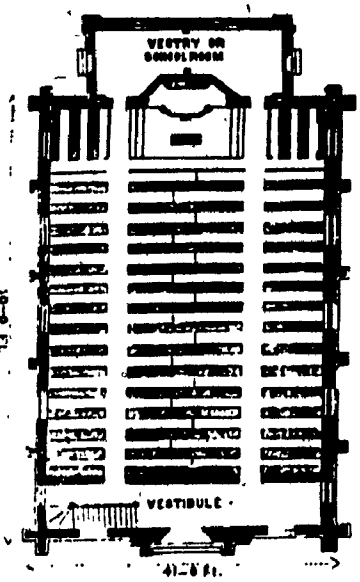
Fig. 27.

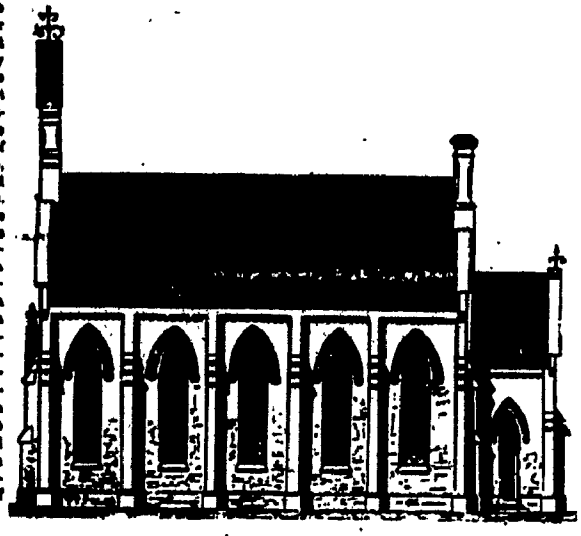
narrow wrought tongued and grooved champhired 1-in. sheeting, and cap the same with 1½-in. moulded capping. The whole should be well nailed to the walls and partitions. All the doors should be 2-inch framed doors, and covered with 1-inch beaded sheeting; hang them to the frames with strong butt hinges, and fit to the same good locks and bolts, when required. The whole of the windows should have box frames, and double-hung sashes. The sashes should be 1¾-in., made to fit the frames, in a proper manner, and divided, as shown in the front elevation. The pulpit floor should not be more than three feet above the church floor, with easy steps to the same. The front of the pulpit should not exceed two feet eight inches in height, with a book-stand, to slide up and down, to suit the speaker. The backs of the pews should be 17 inches high, and at least 13 inches wide, and they should slope about 4 inches. Book-boards and pew doors are now generally dispensed with. The foregoing [illegible] will be found sufficient to form the groundwork of a specification, but we would recommend parties intending to erect a church to obtain the services of a competent architect. The accompanying diagrams and specifications were prepared by our architect, Mr. Smith, who has had considerable experience in church building, and who will be happy to furnish any information, required on the subject, to parties who intend to add a tidy and comfortable church to the attractions of their neighbourhood.

Of course, in many instances, the services of an architect must necessarily be dispensed with, and, in such cases, we hope the plans published in this journal will be found of especial value and helpfulness. But we would particularly urge upon our readers the desirableness of adopting a good style of architecture, in the erection of dwellings, residences, churches, and even barns and out-buildings. Churches being generally built on conspicuous sites, their defects or excellencies are plainly visible, and while a good structure is a model and educator in the right direction, a poor unsightly building has an injurious effect. Nature is beautiful in every shape and in every dress. Let art be the handmaid of nature, and seek to conform to her examples and rules. We hope the time may come when the devout worshipper will be able to say of the country churches of Canada, what certainly cannot now be said truthfully of the great majority of them:

"Those temples of Thy grace,
How beautiful they stand!"

GROUND PLAN.





Poetry.

Leisure.

BY JEAN INGELOW.

Grass is the kisses of the earth;
She gives her happy mortals birth,
And after harvest lies on earth,
But goes to sleep in snow-crumbs also.

Dread is the kiss, cup shows,
The white he sits, whose name is Love,
And water, on Noah did, the dove,
To win if she would fly to him.

He wove for us, while, heavenly things,
We hunt about with bruised wings,
On the dark woods and water springs,
The veiled world, the dyeless sun.

With open windows from the prison,
All night, all day, he waits sublime,
Till the Fullness of the time,
Dressed from his eternity.

Where is our leisure? Give us rest!
Where is the quiet we possessed?
We must have had it once—ever blest
With peace, whose phantoms yet caress.

Surely the mother of mankind
Longed for the portion left behind;
For we still prove some yearnings blind,
Inherited from Paradise.

Fig. 28.

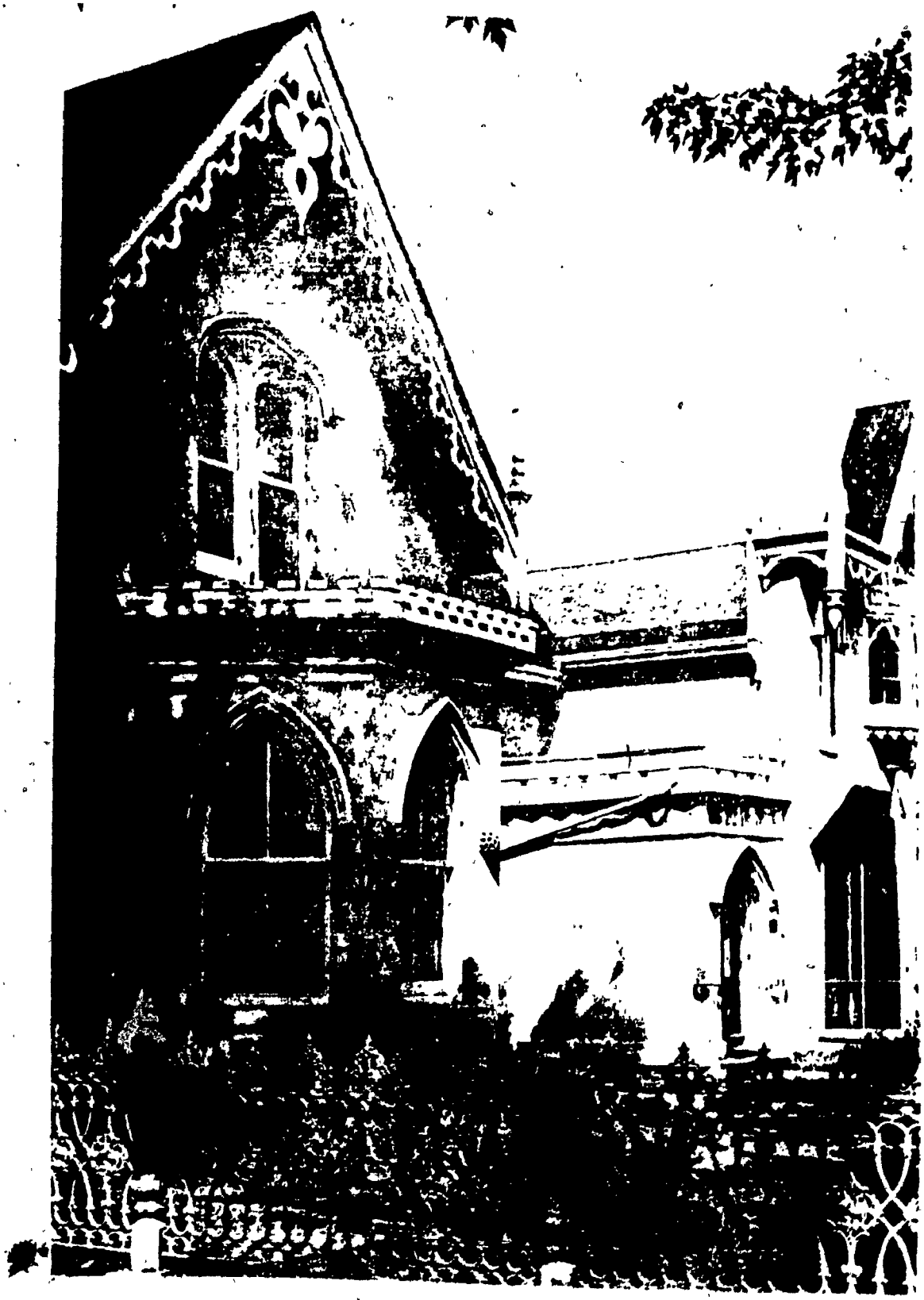


Fig. 29a.

Fig. 29b.

Fig. 30a.

Fig. 30b.

Fig. 31.

Fig. 32a.

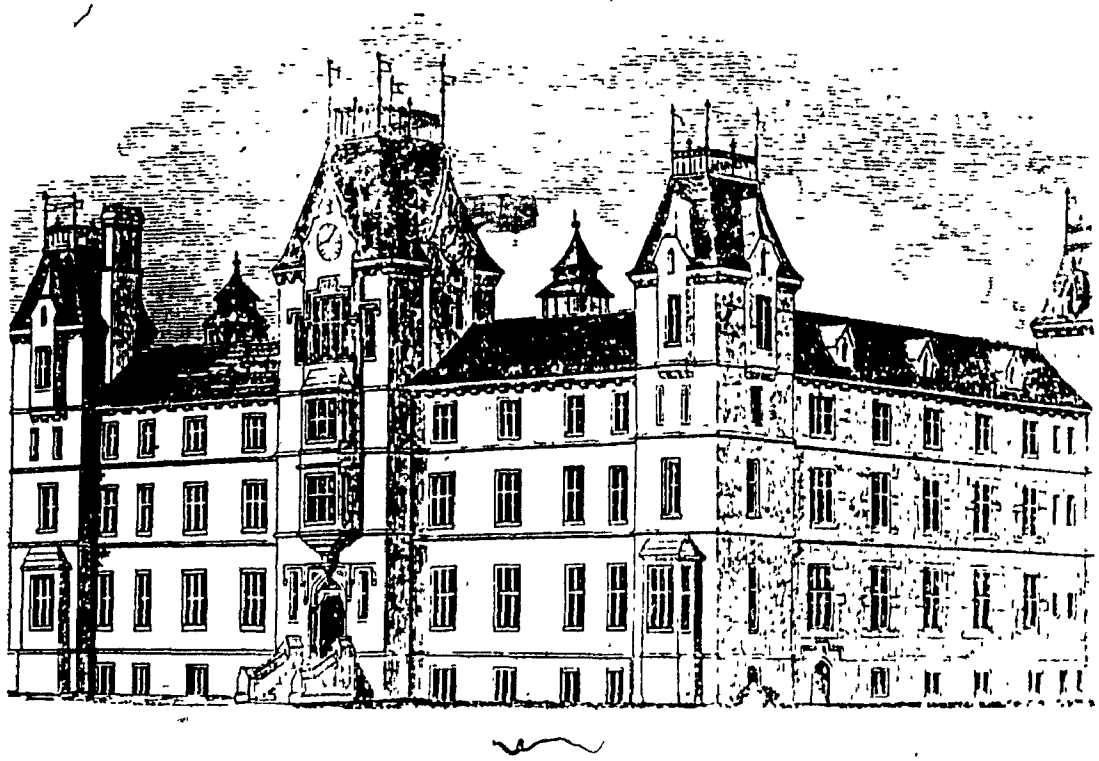


Fig. 32b.

Fig. 33a.

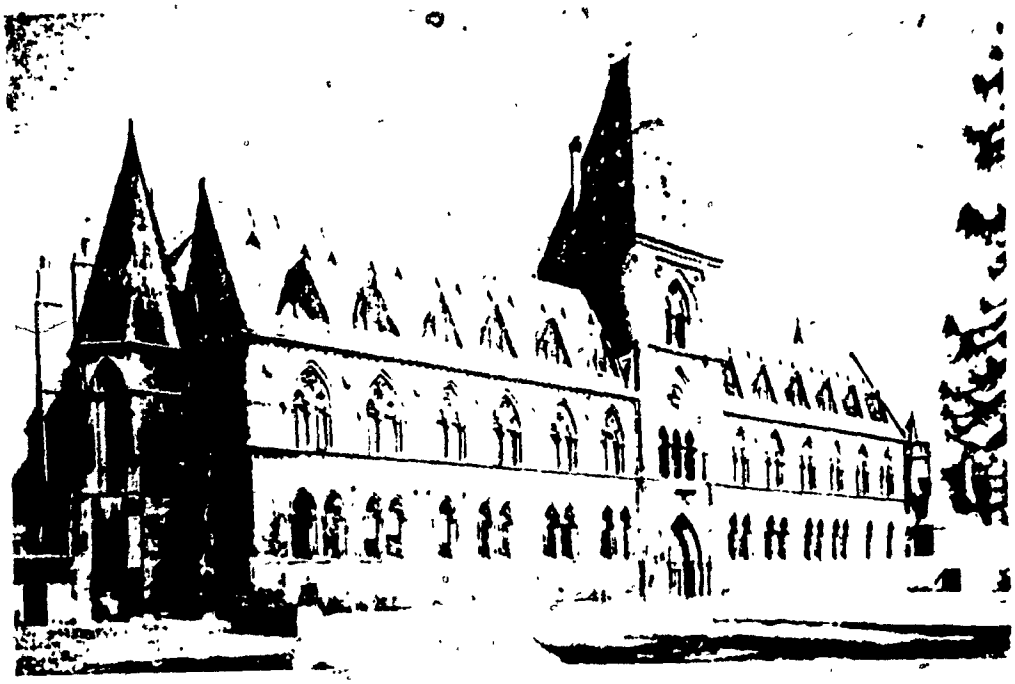


Fig. 33b.

Fig. 34a.

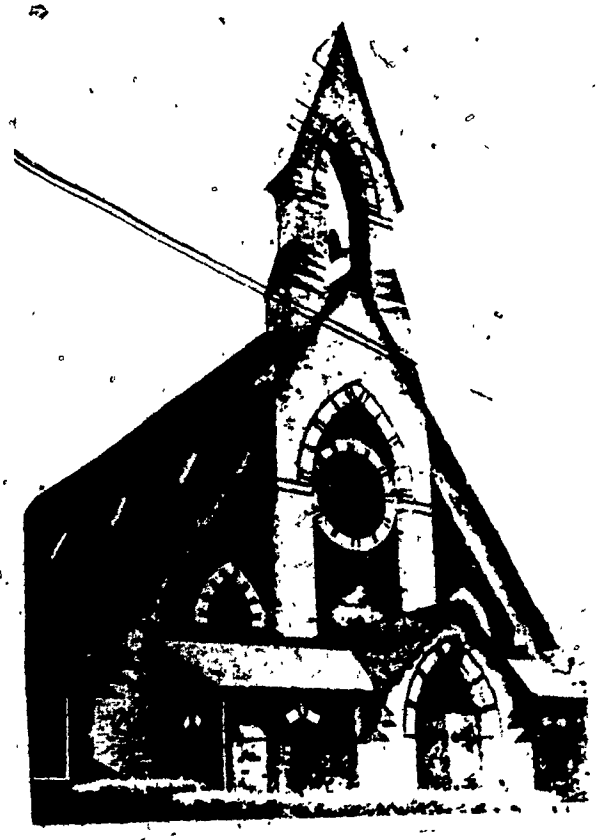


Fig. 34b.

Fig. 35.

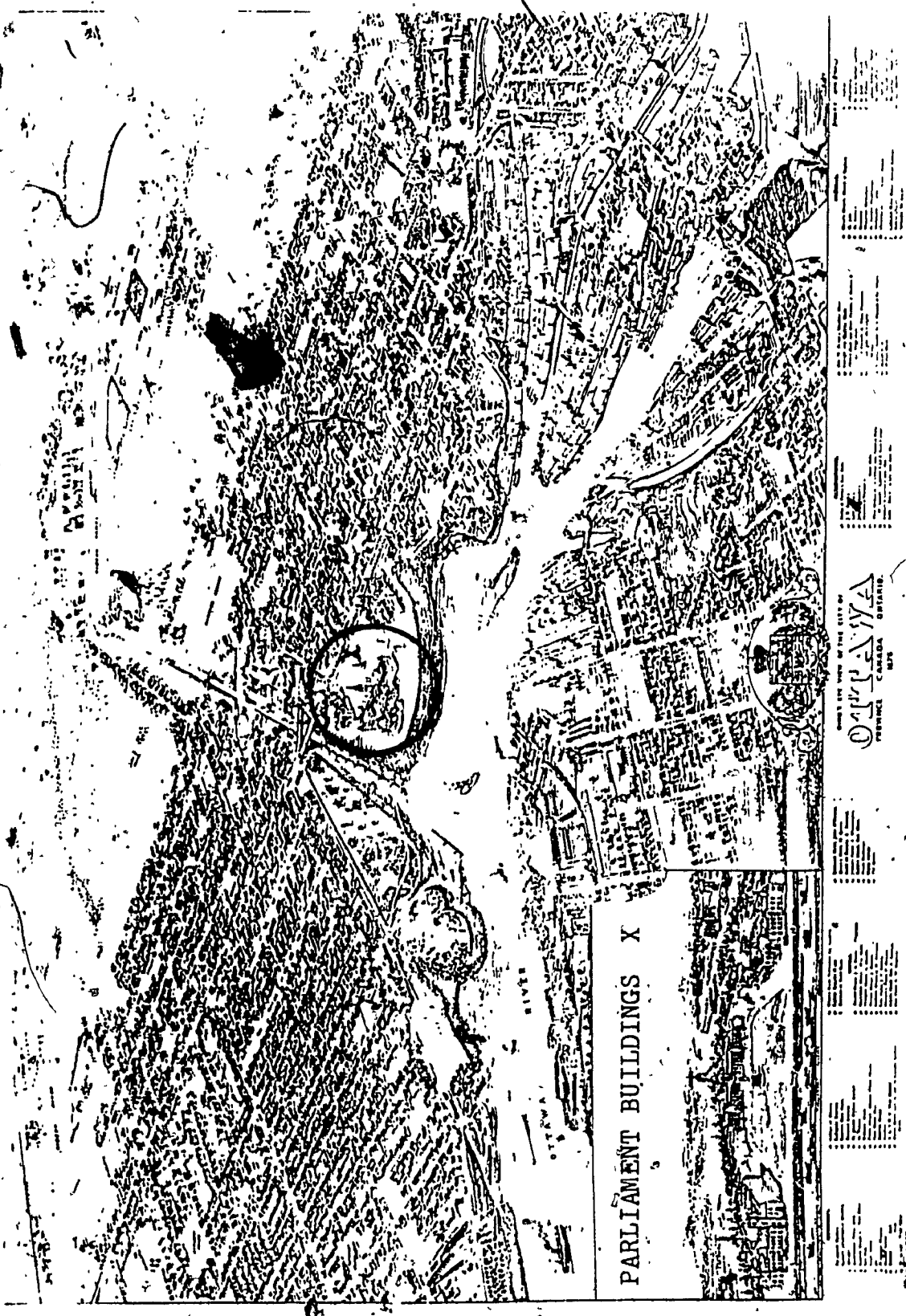
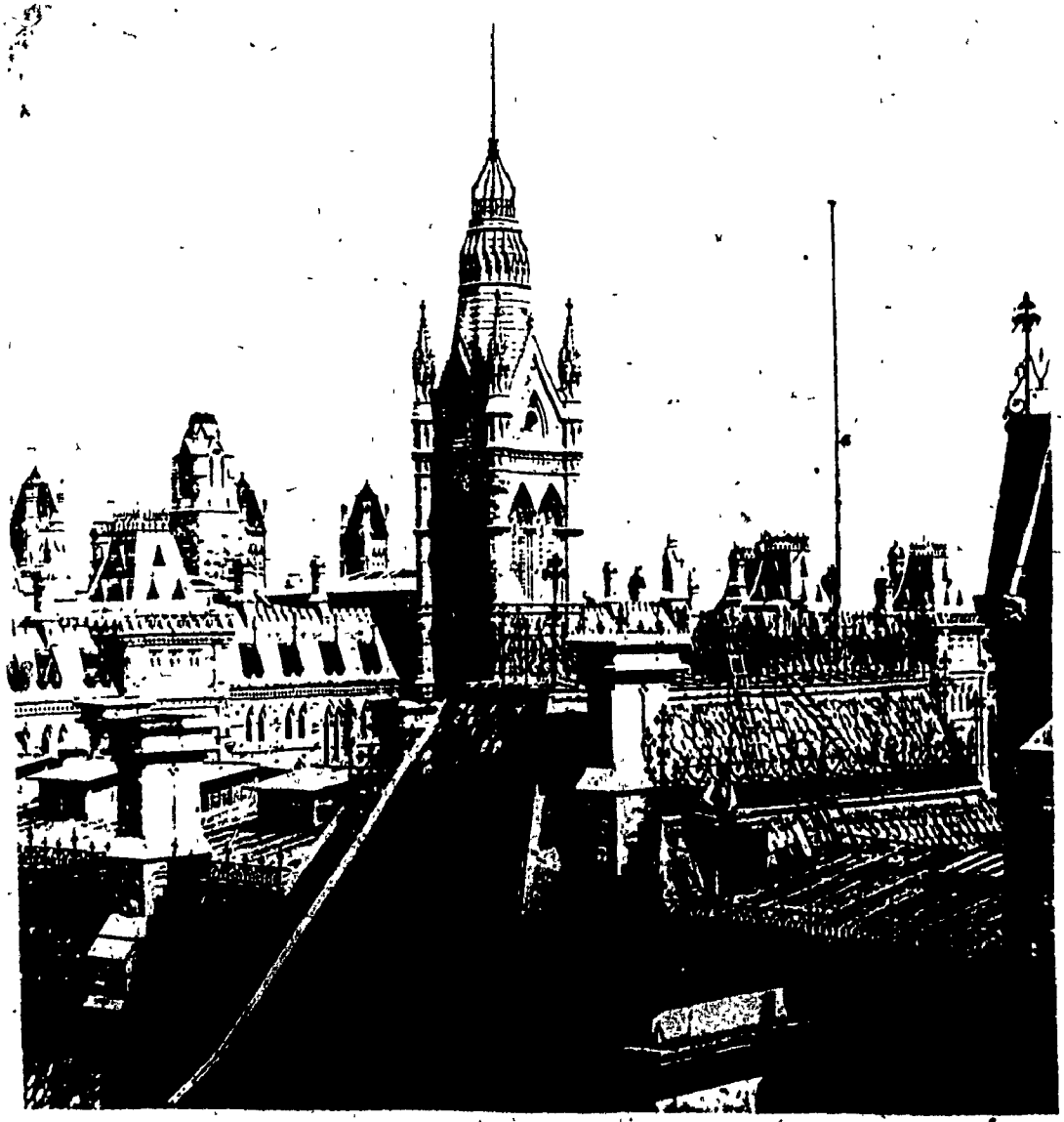


Fig. 36.



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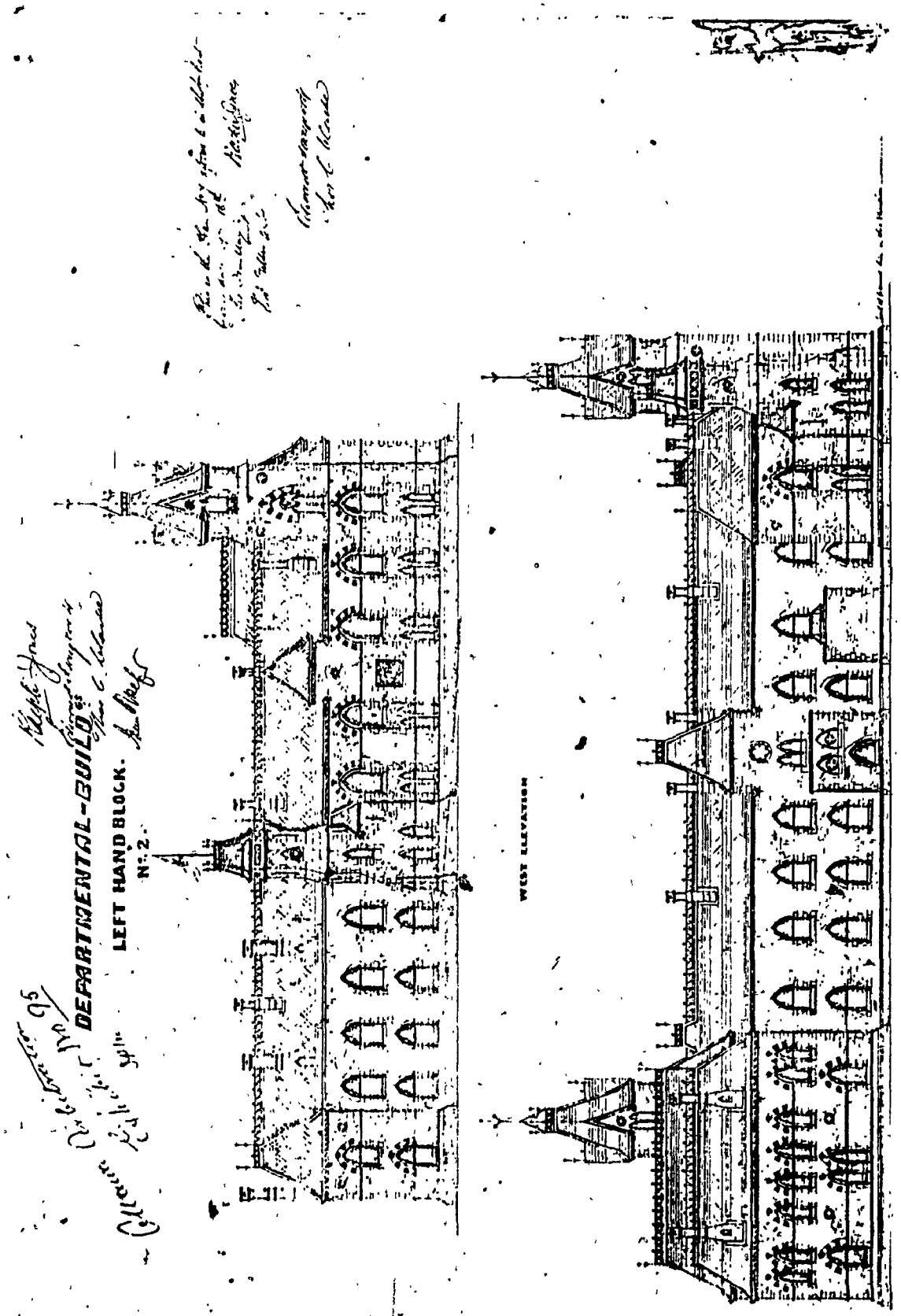
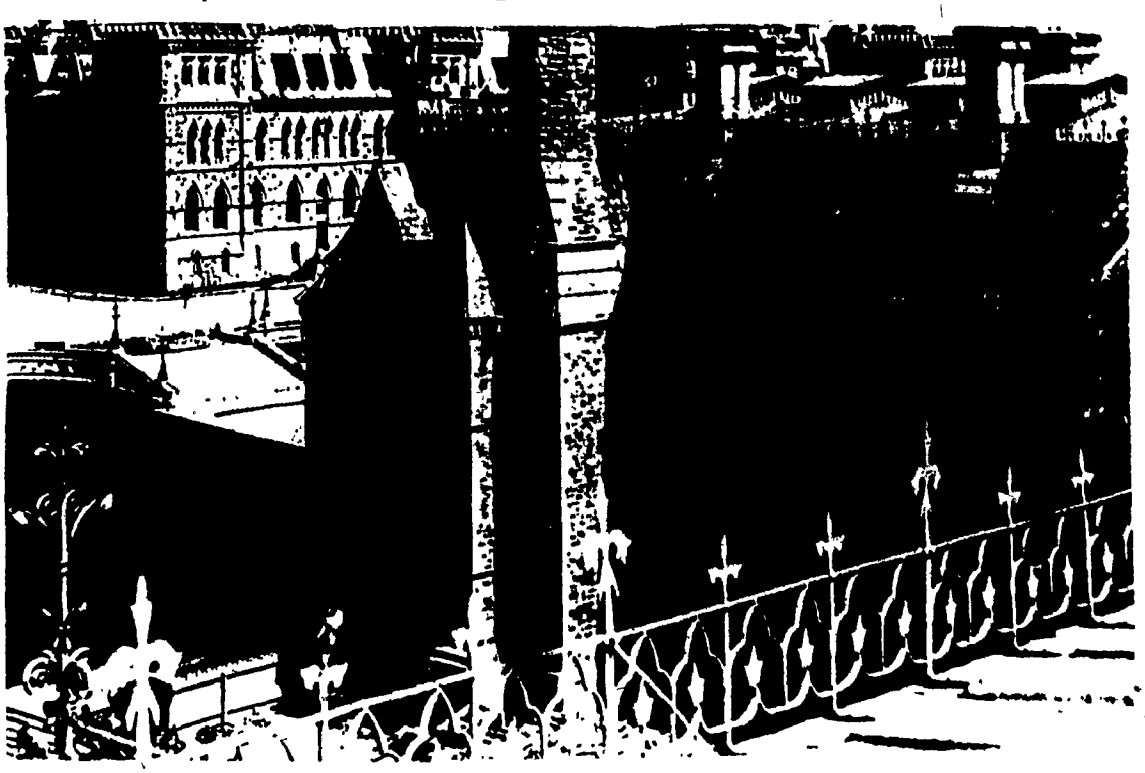


Fig. 38a.



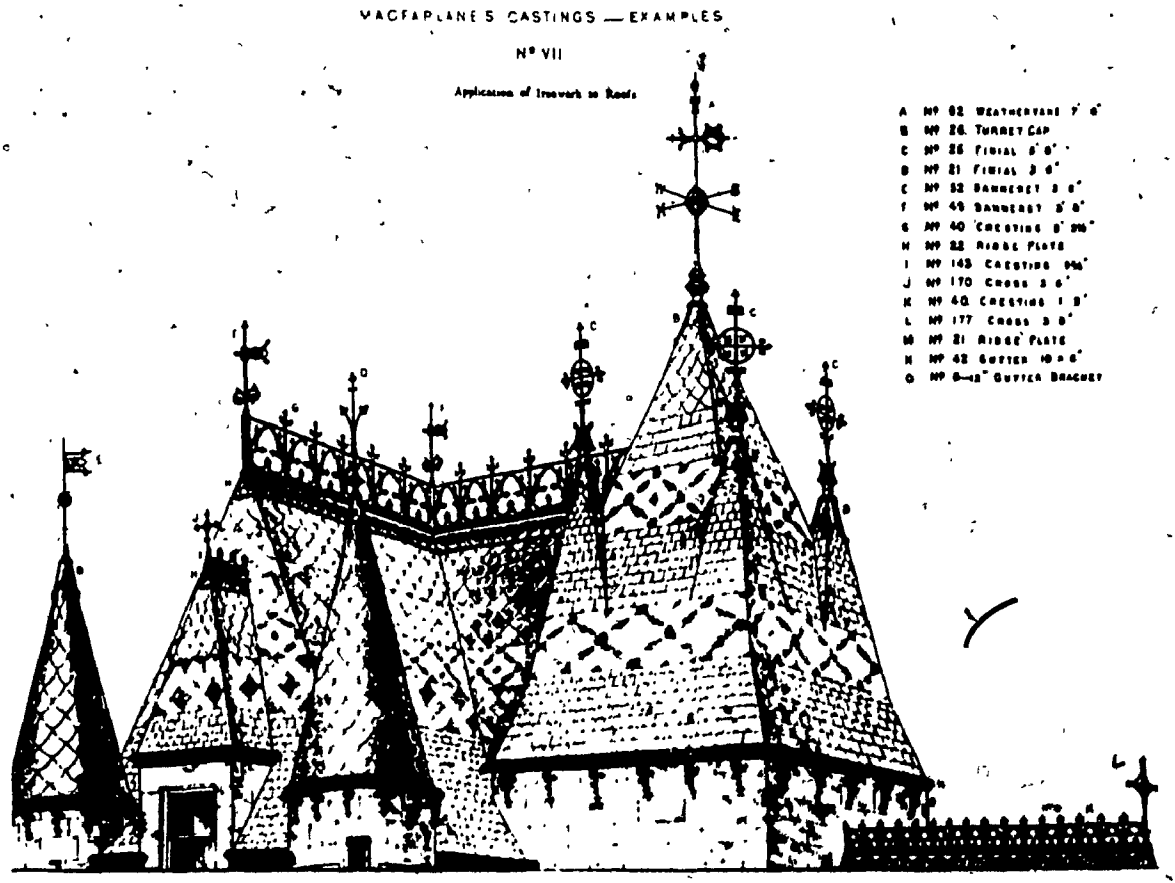


Fig. 38b.

Fig. 39.

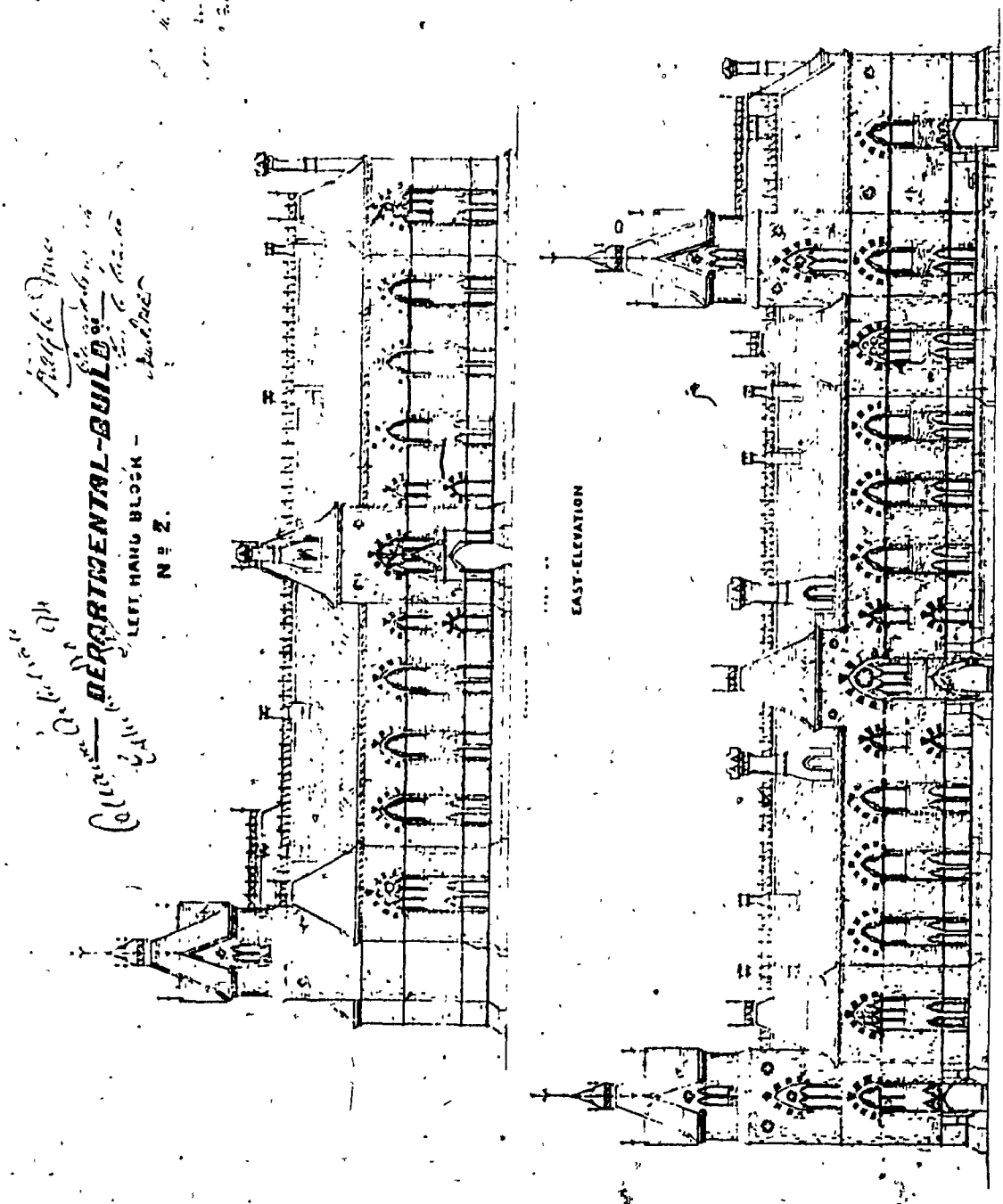
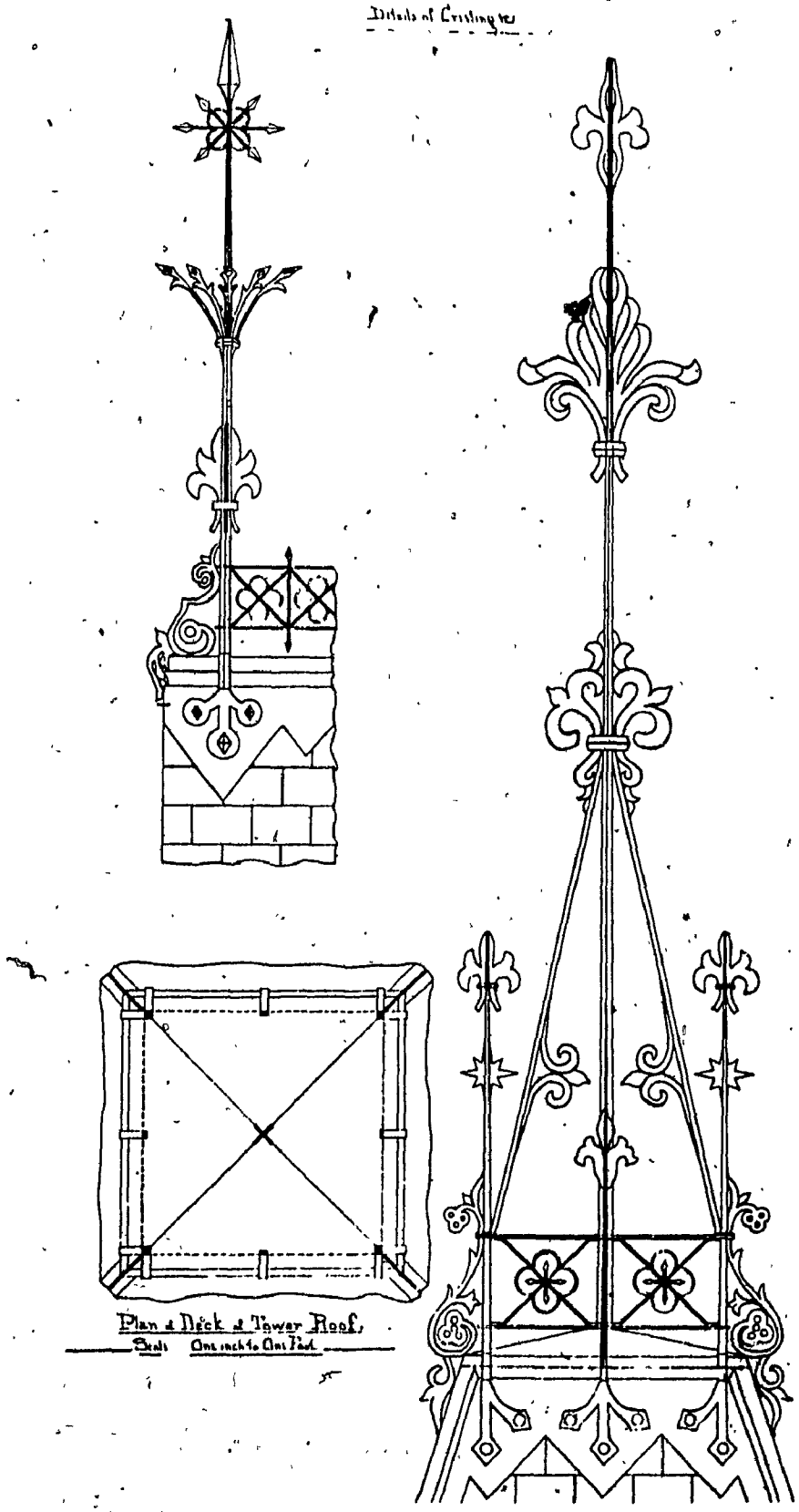


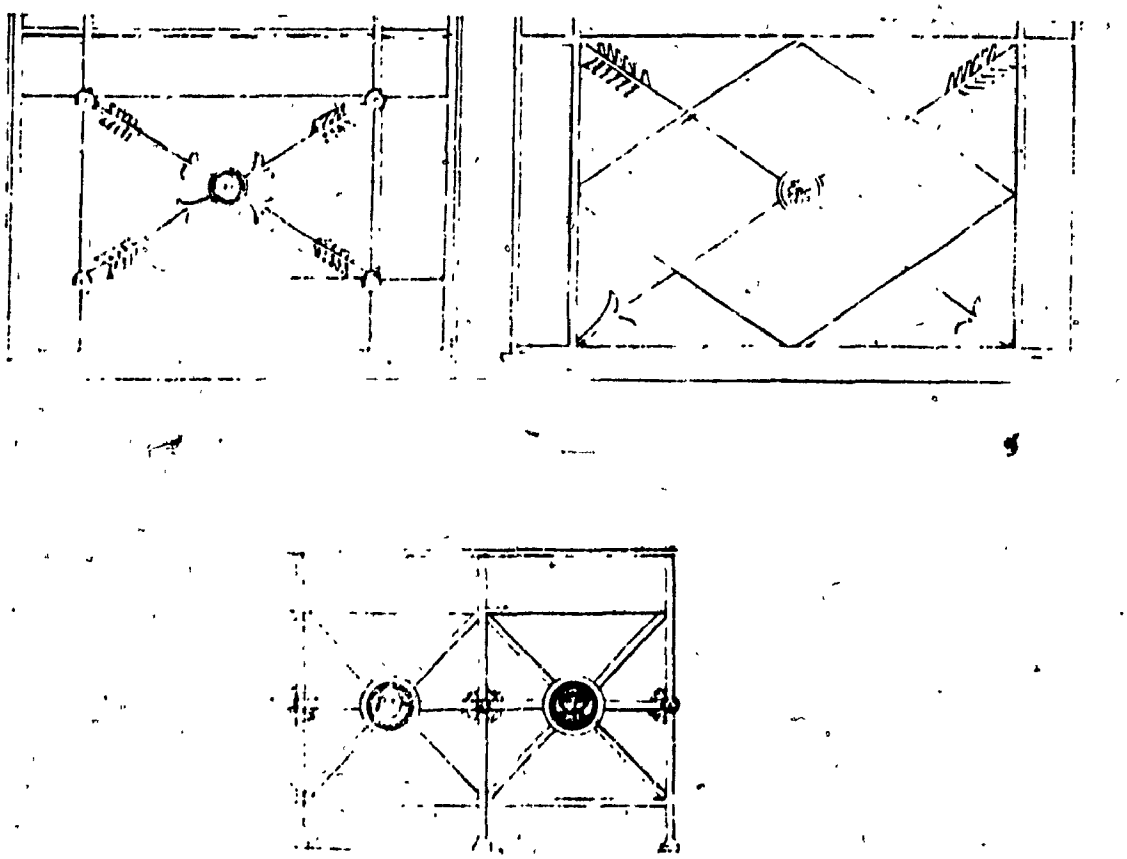
Fig. 40.

Western Block Department Building
Ottawa
Details of Finishings



Plan of Deck of Tower Roof.
Scale One inch to One Foot

Fig. 41.



DEPARTMENTAL BUILDINGS.

NORTH-ELEVATION, EASTERN BLOCK.

SCALE, TWELVE FEET TO AN INCH.

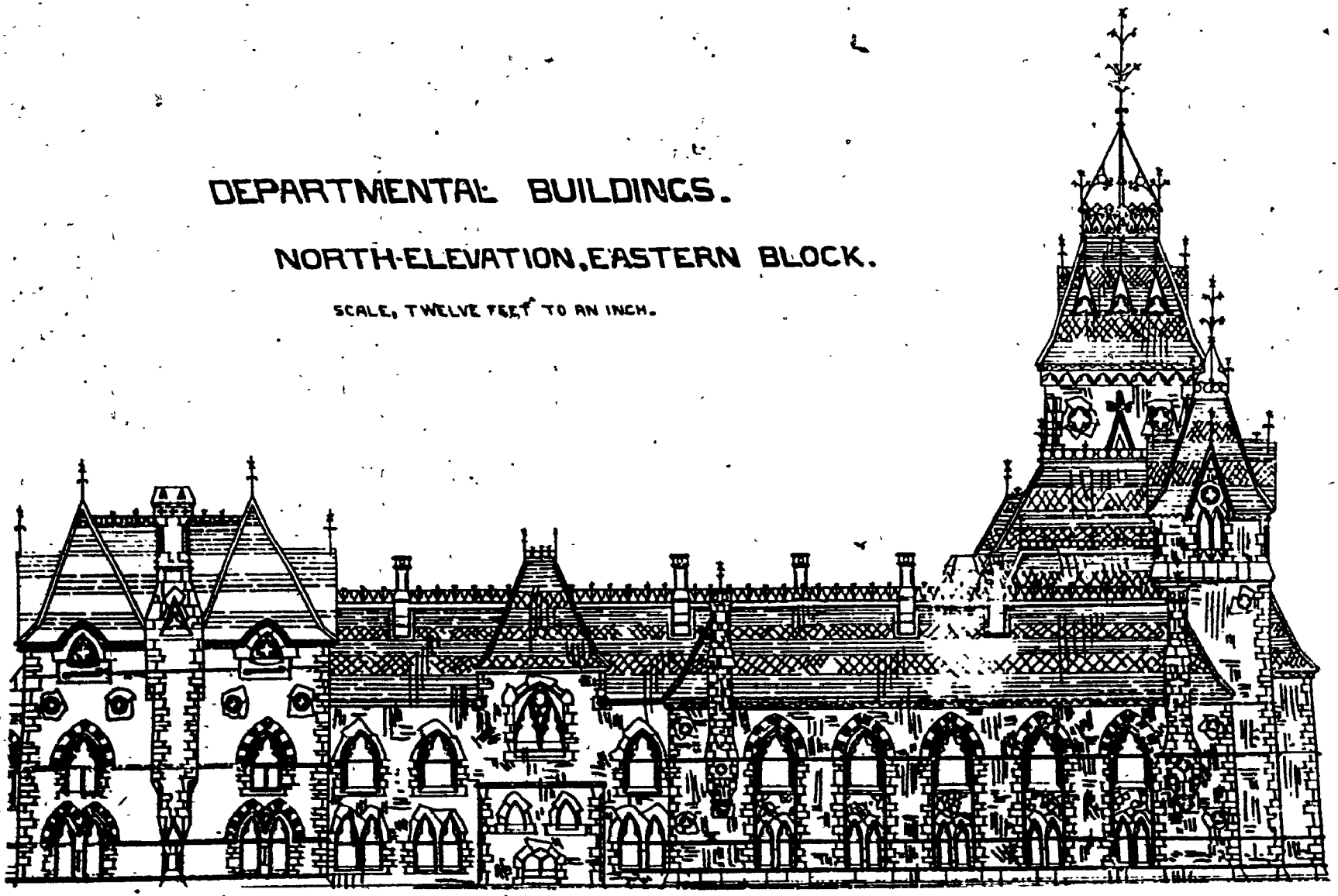


Fig. 42.

Fig. 43a.

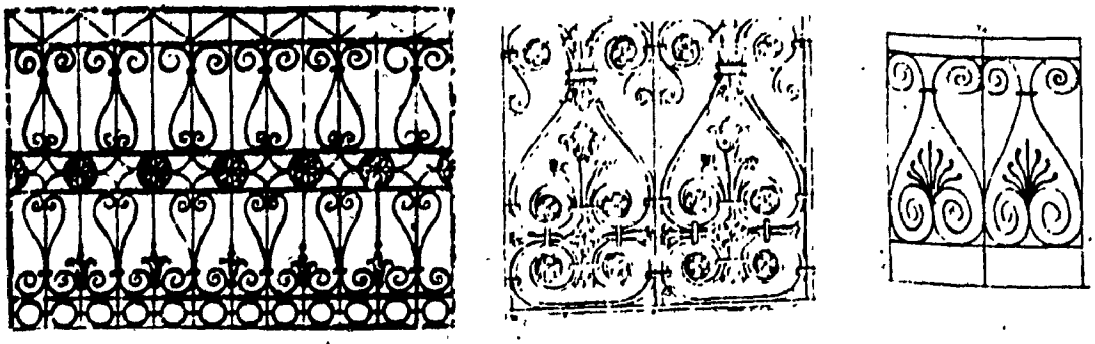
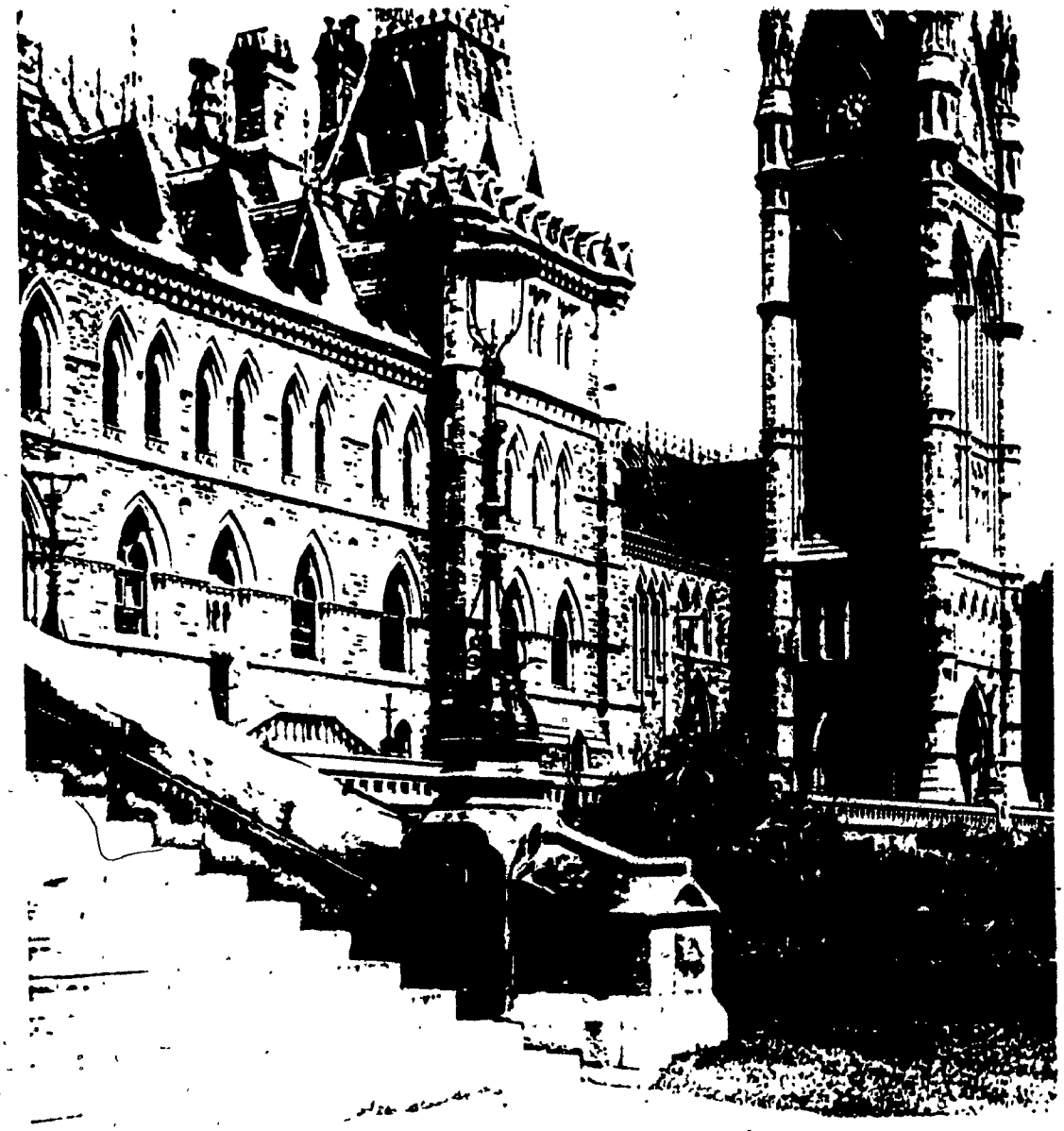


Fig. 43b.

Fig. 44a.



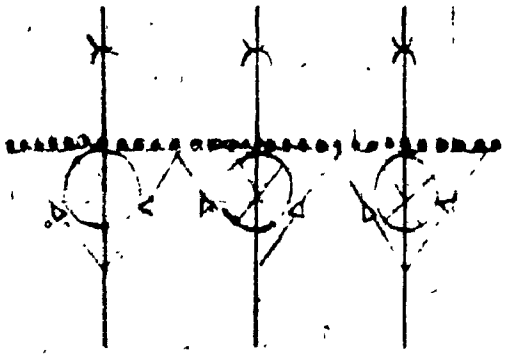


Fig. 44b.

Fig. 45a.

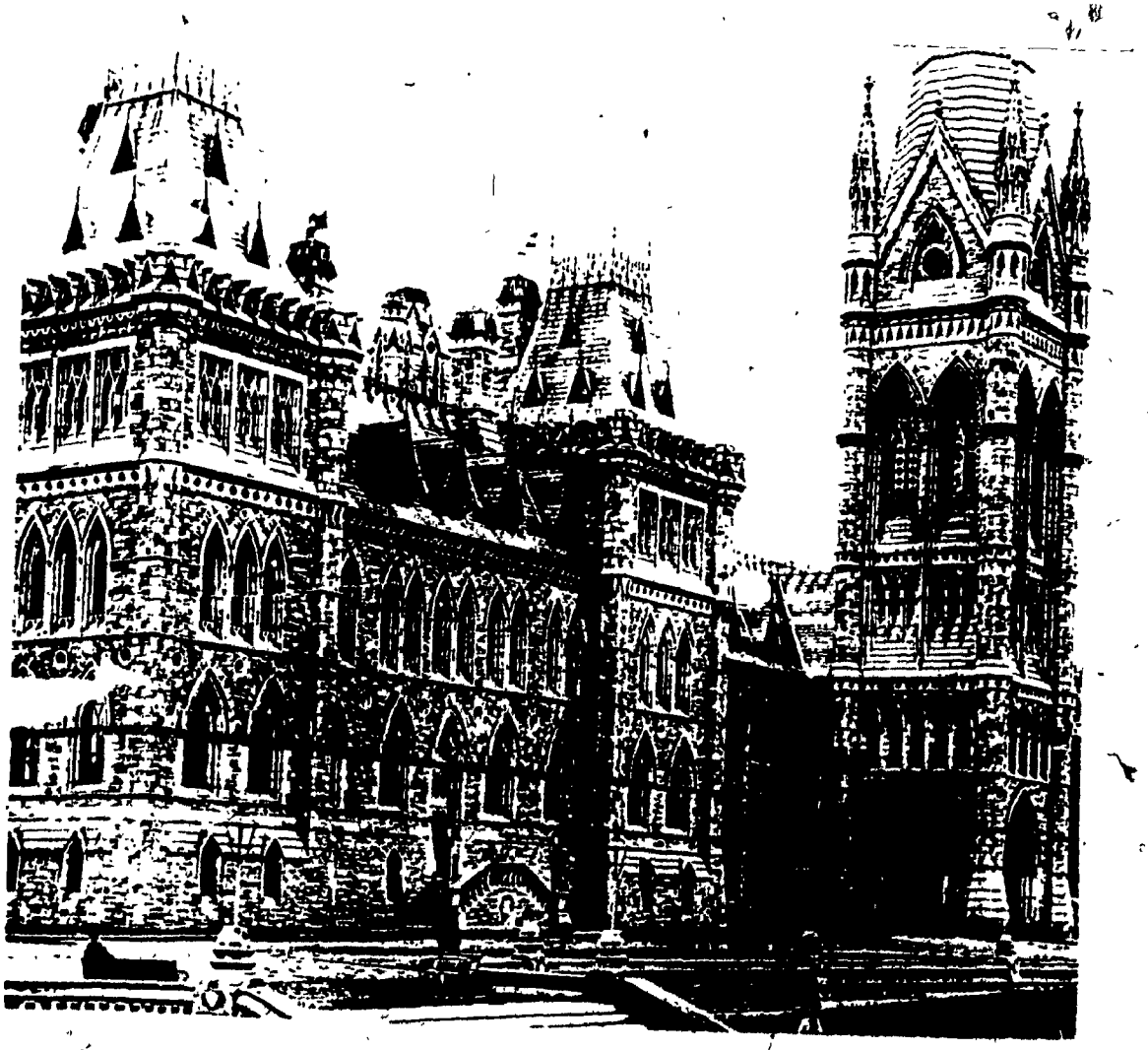


Fig. 45b.

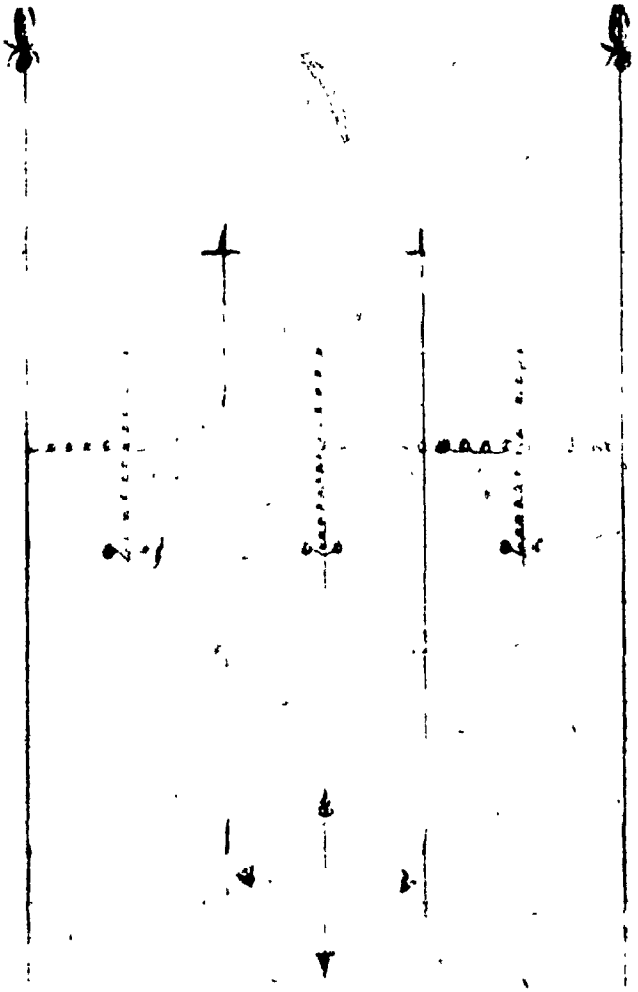


Fig. 45c.

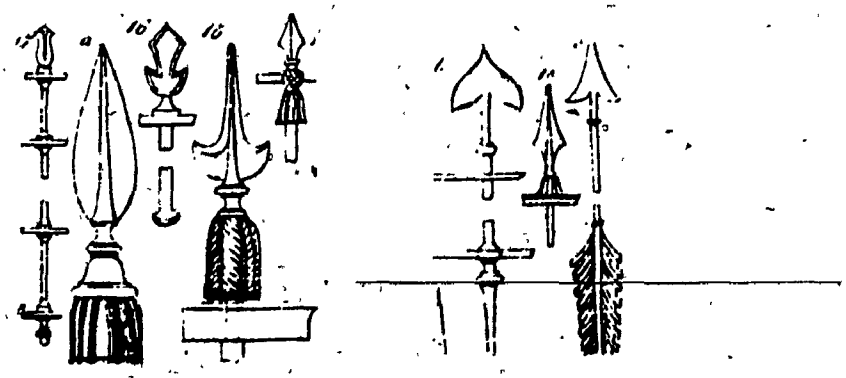
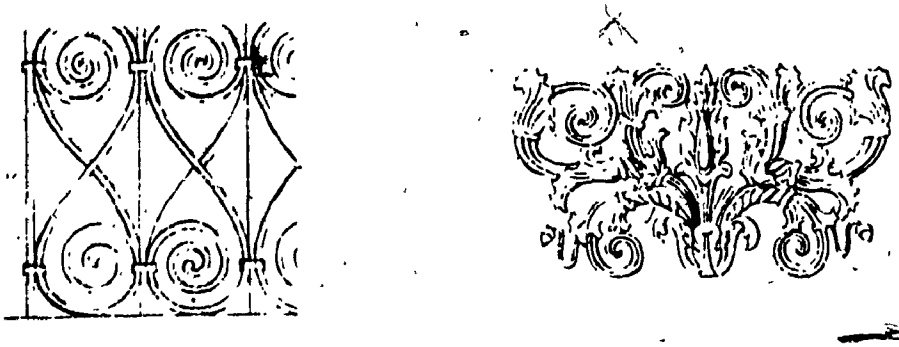


Fig. 45d.

Fig. 46.a.



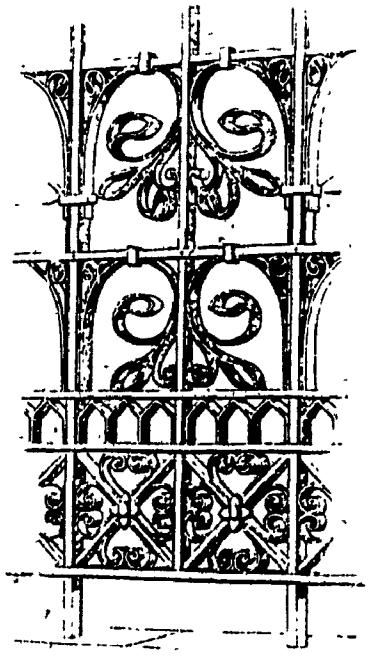


Fig. 46b.

Fig. 47a.

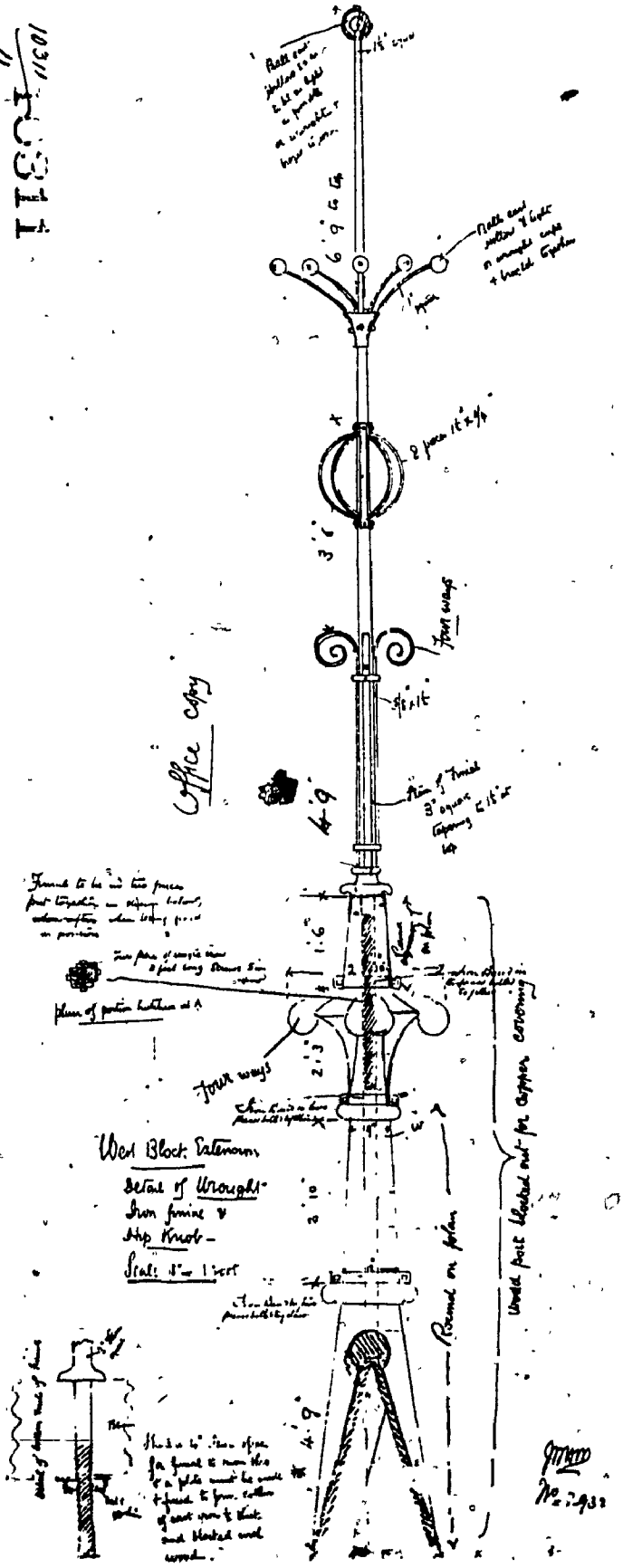


Fig. 47b.

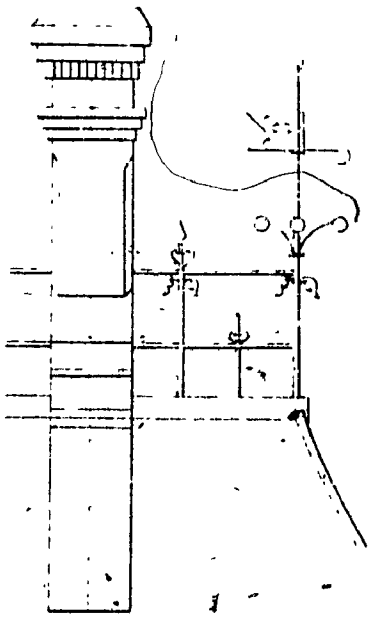


Fig. 48.

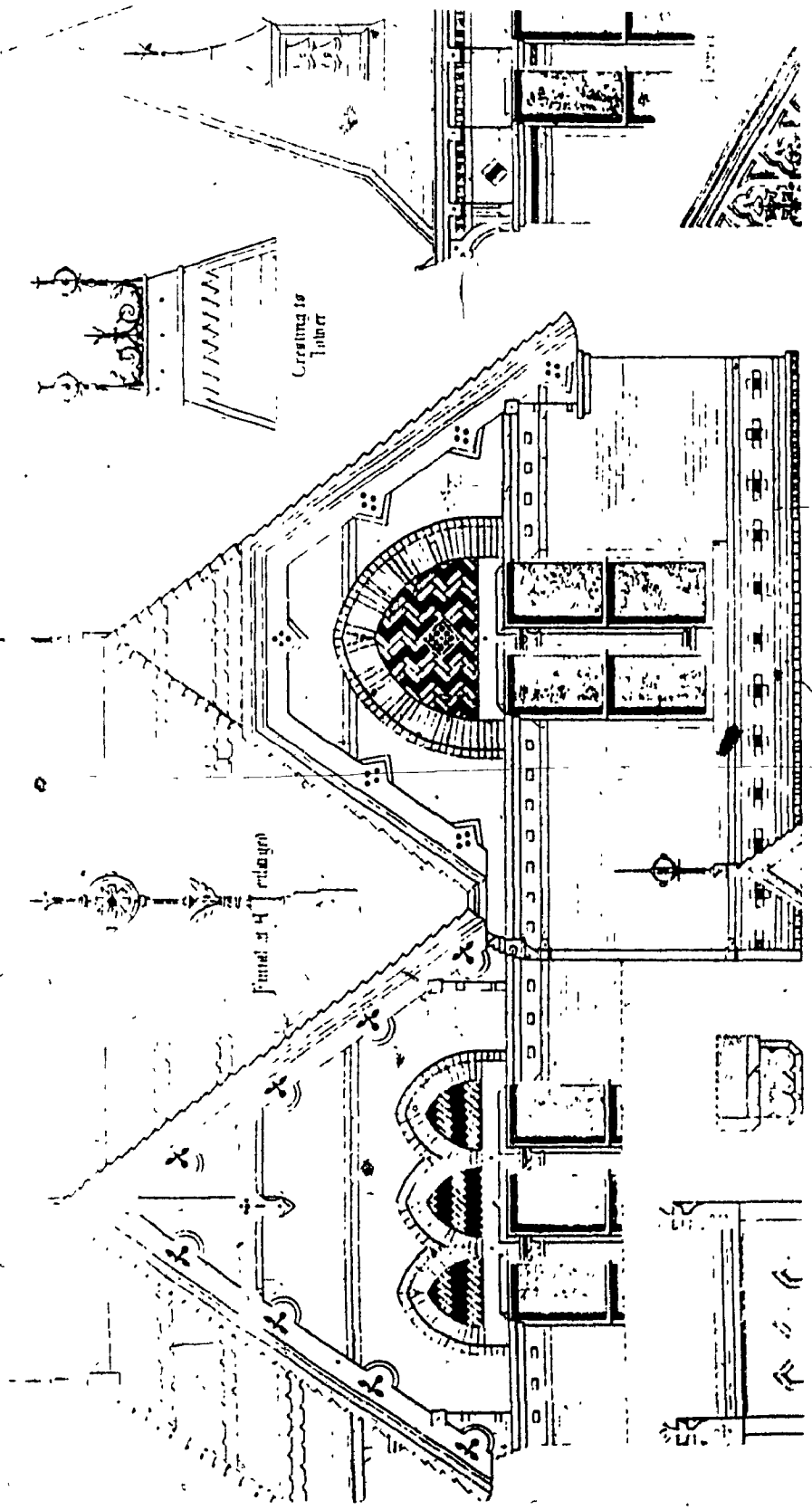
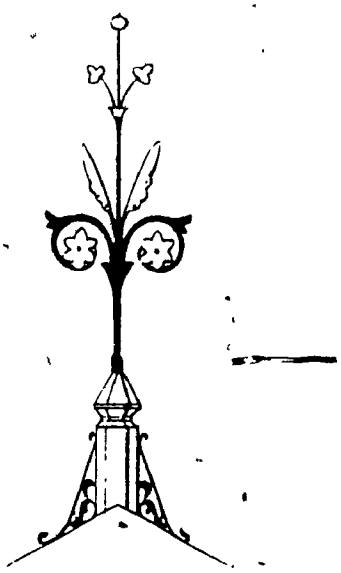


Fig. 49a.



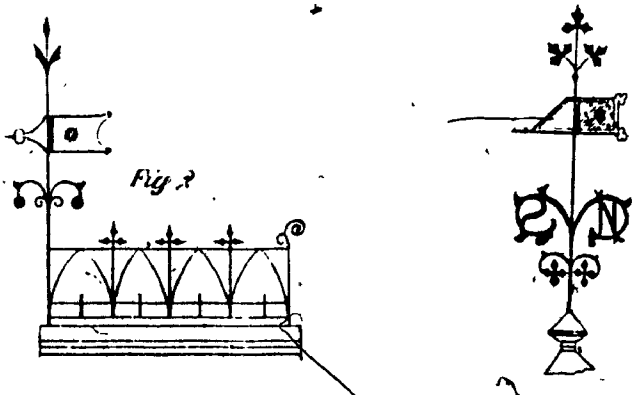


Fig. 49b.

Fig. 50.

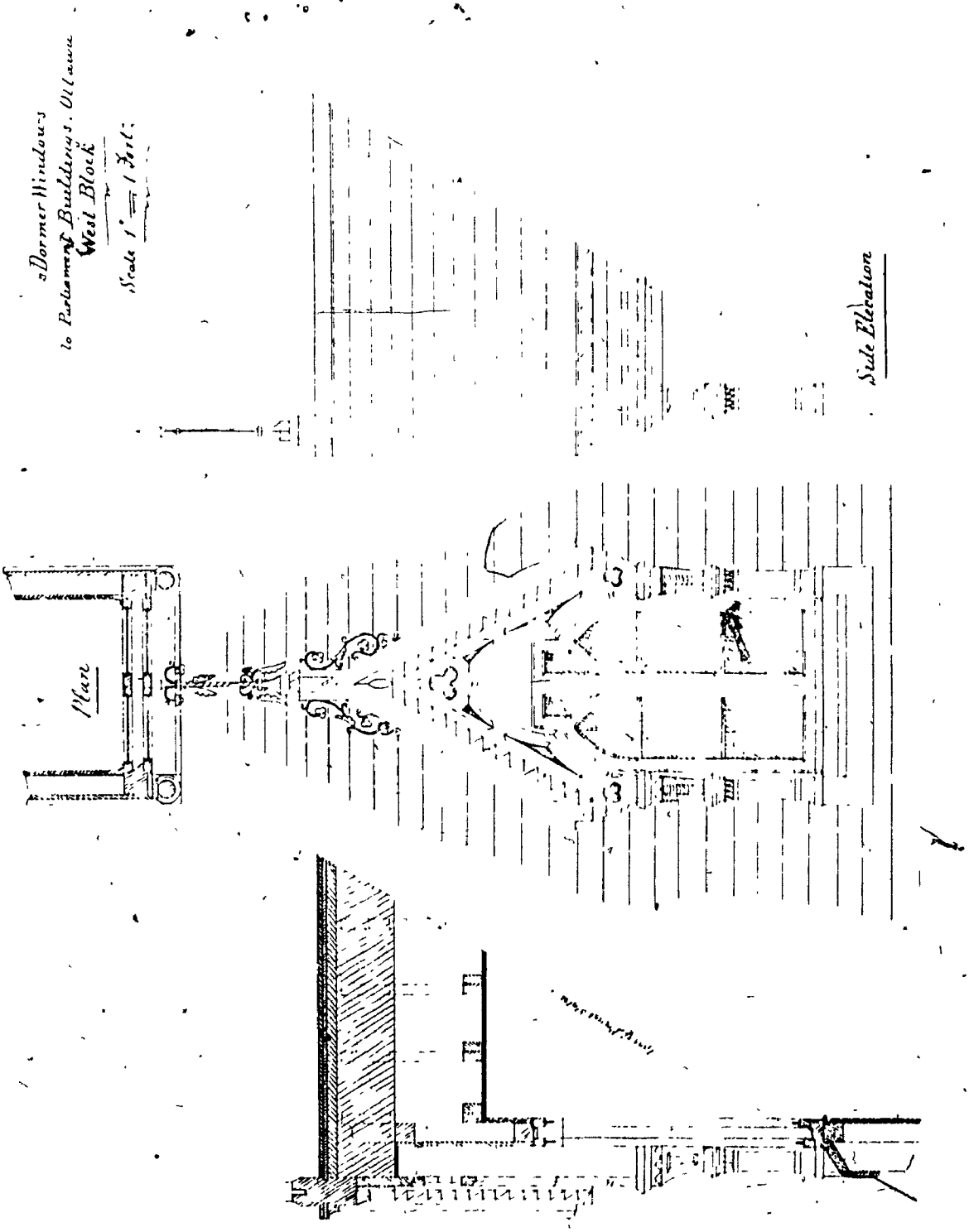
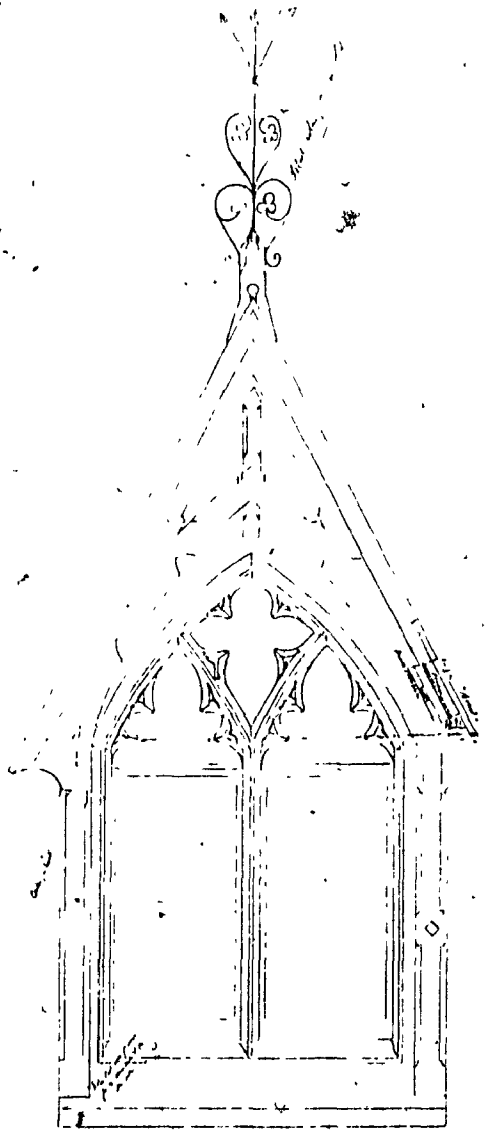
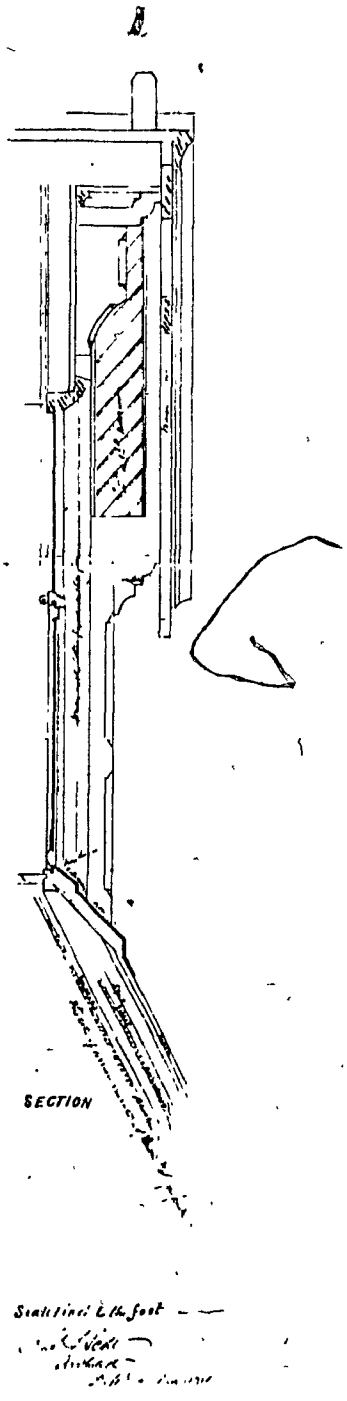

Dormer Windows
to Parliament Buildings, Ottawa
West Block
Scale 1" = 1 Ft.
Side Elevation
Plan

Fig. 51.





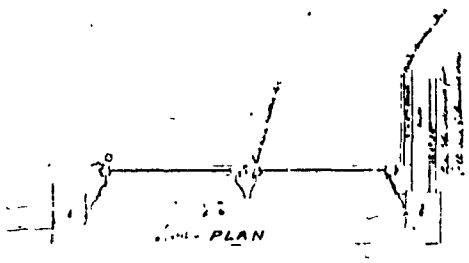


Fig. 52.

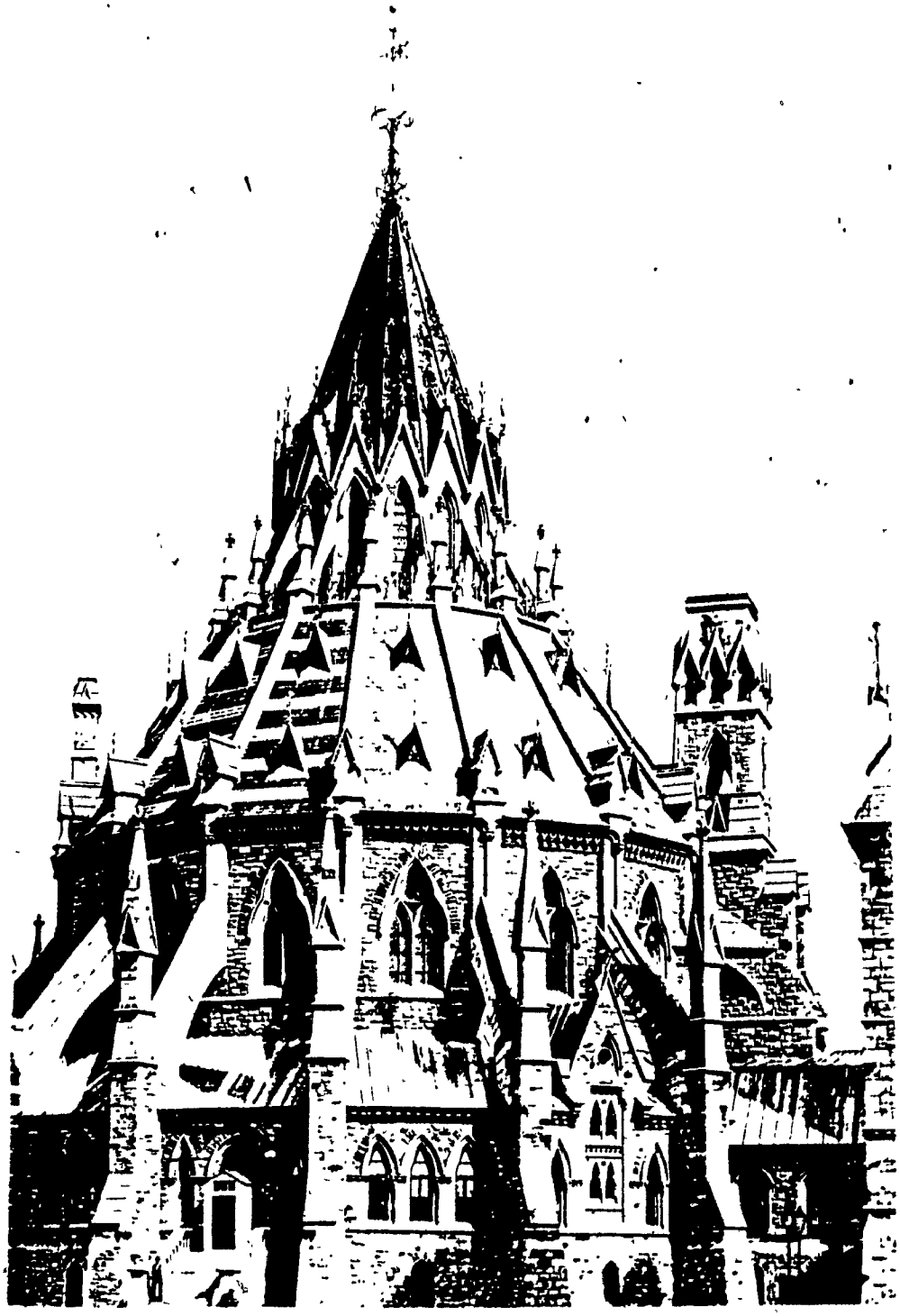


Fig. 53.

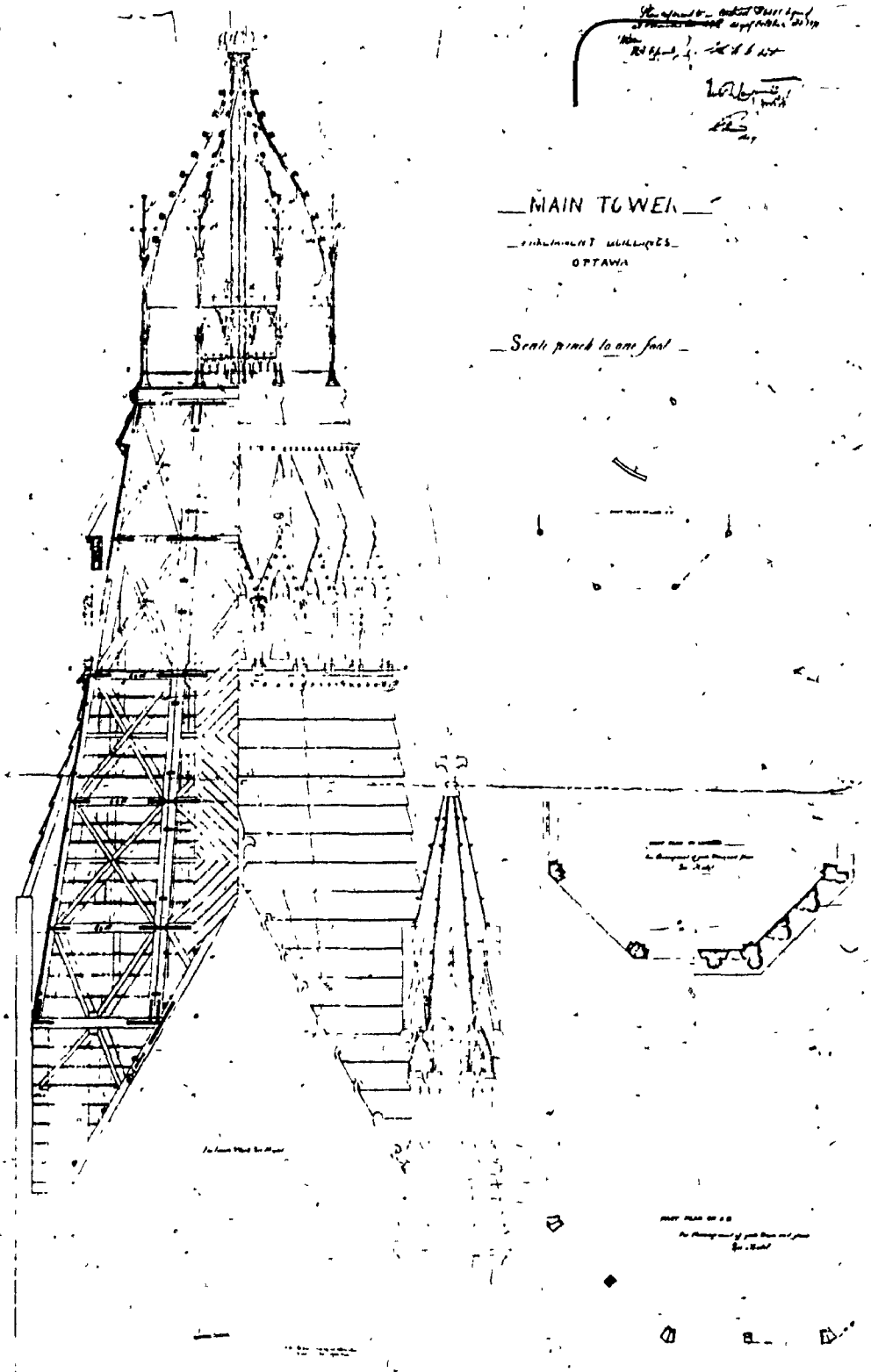


Fig. 54.

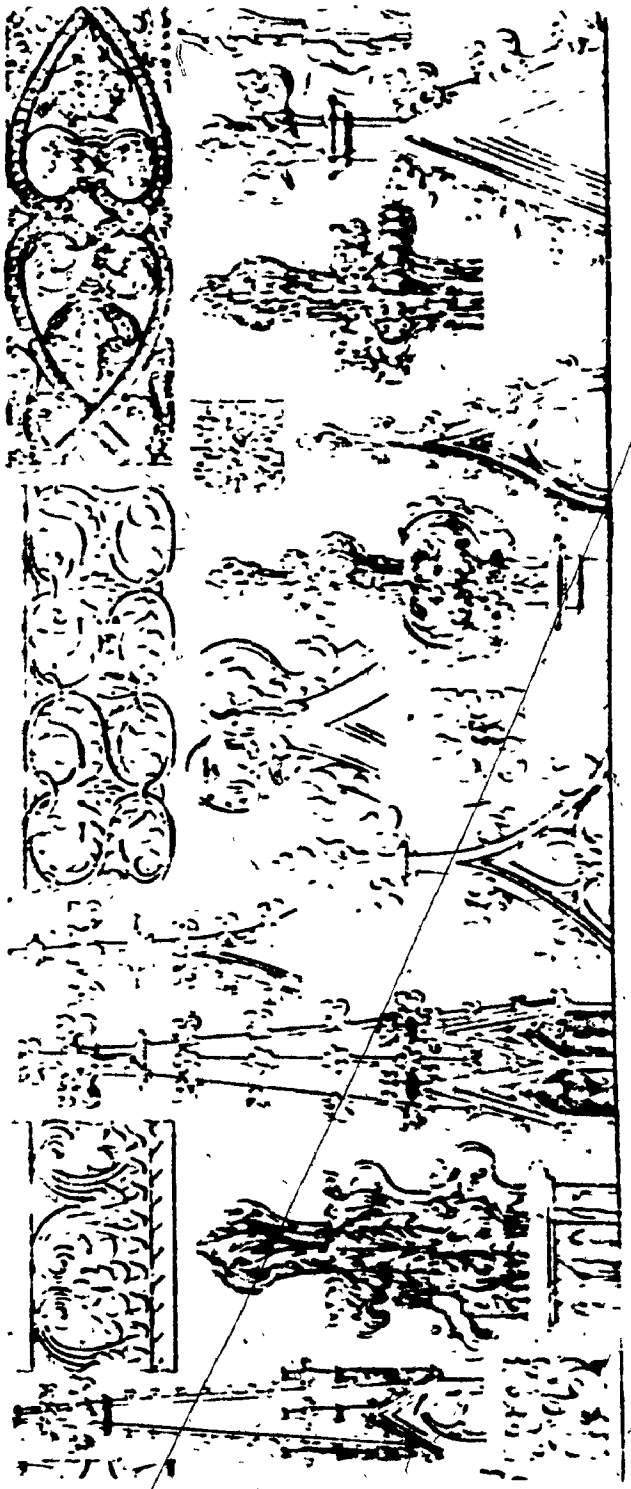


Fig. 55.

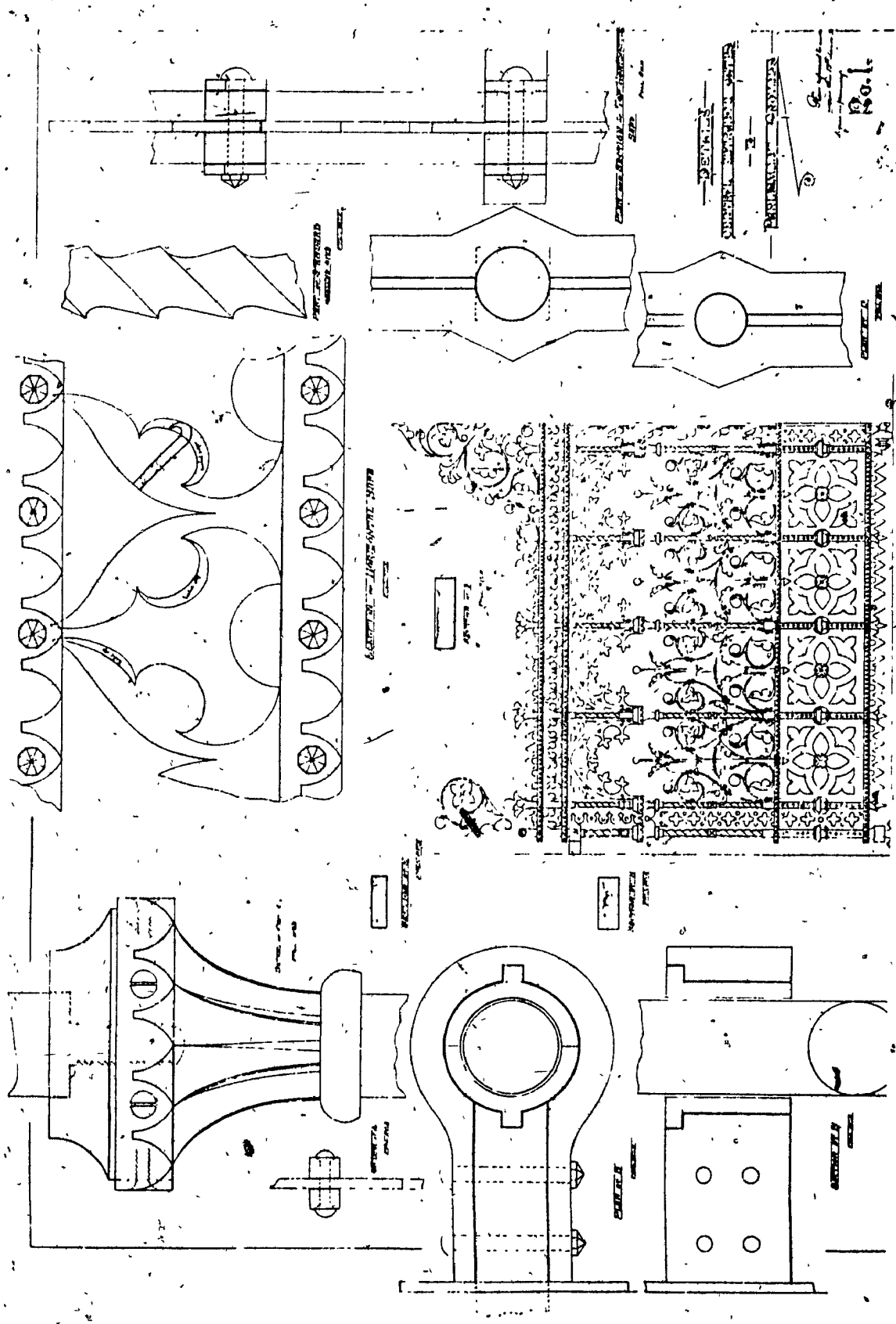


Fig. 56.

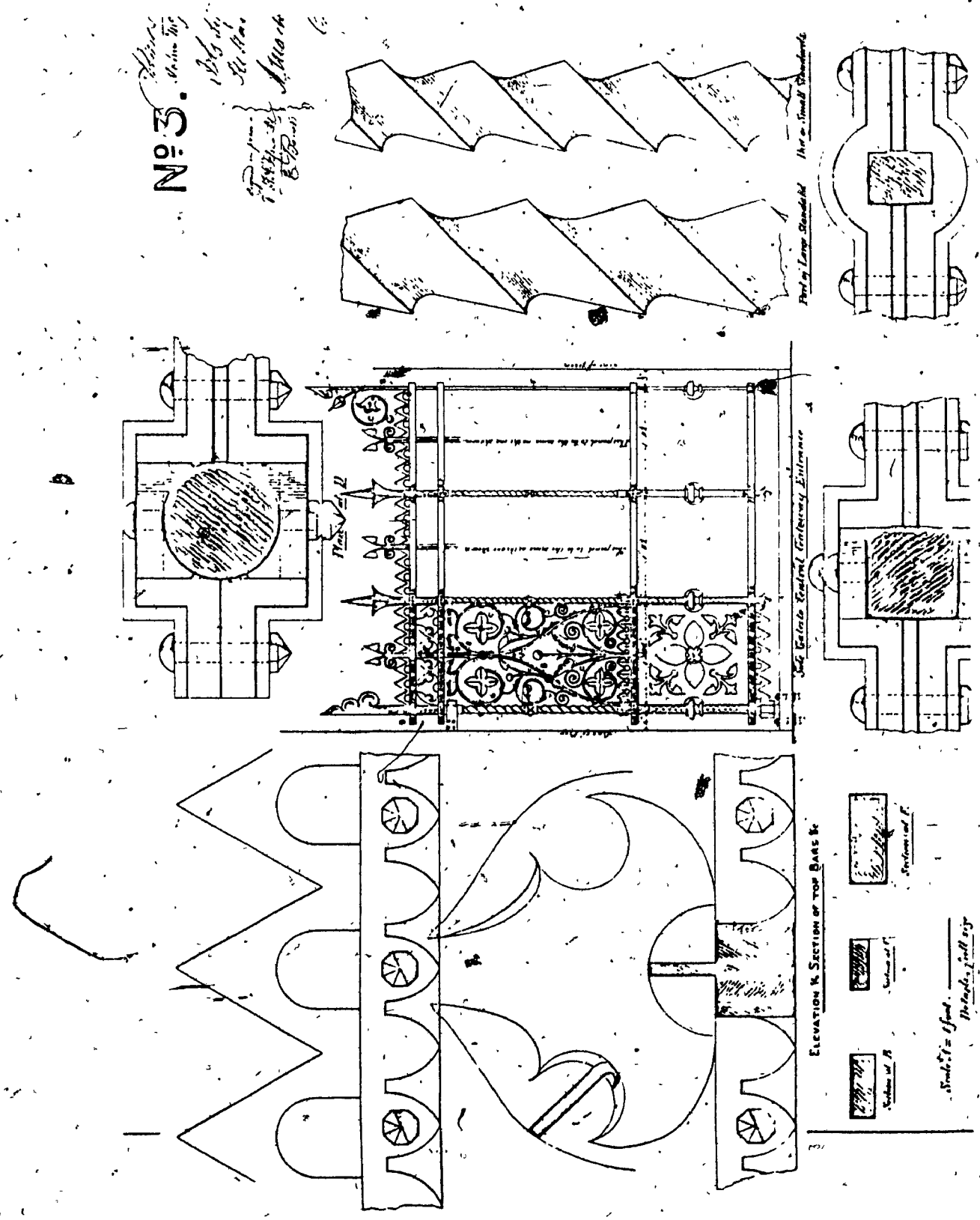


Fig. 57.

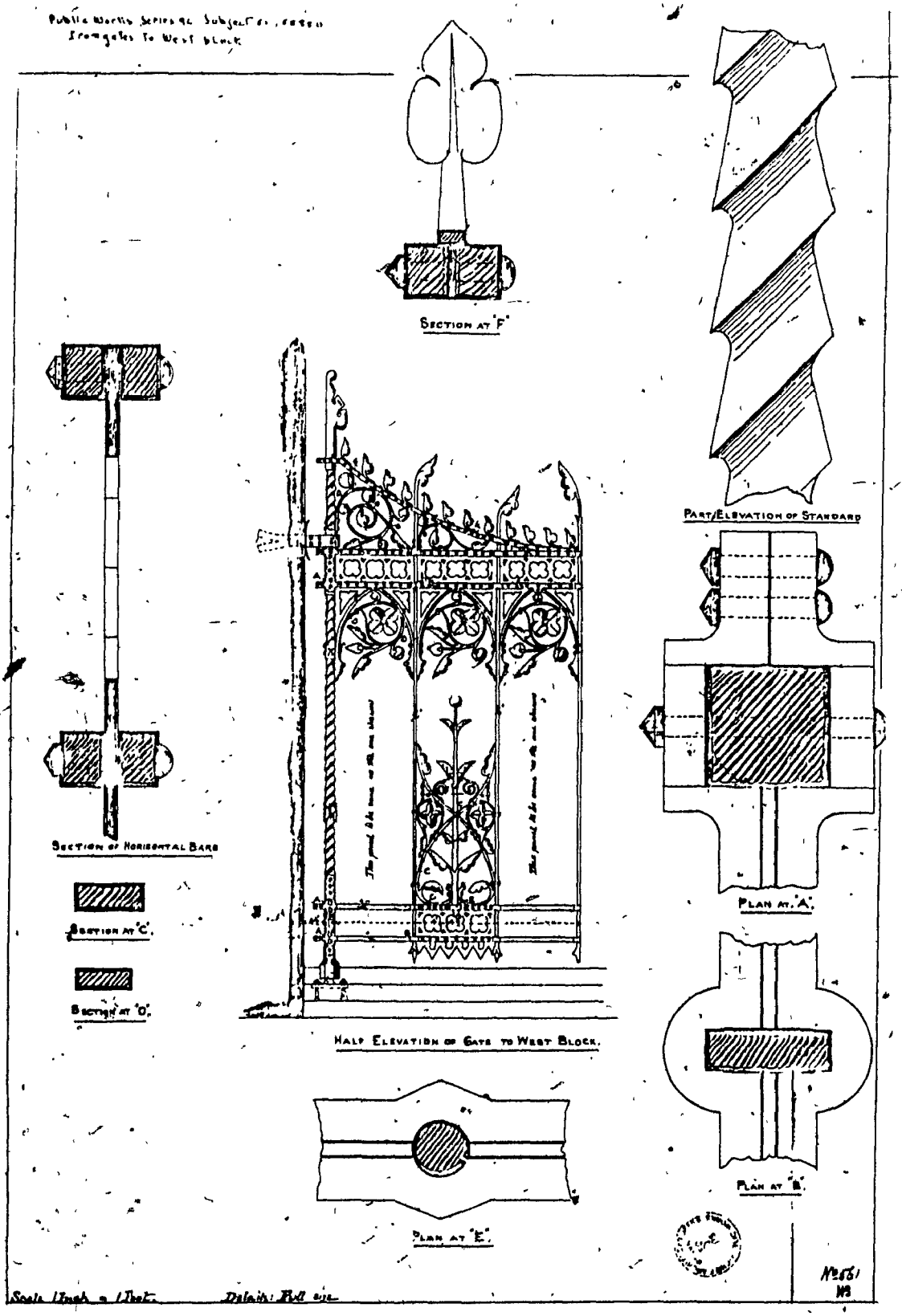
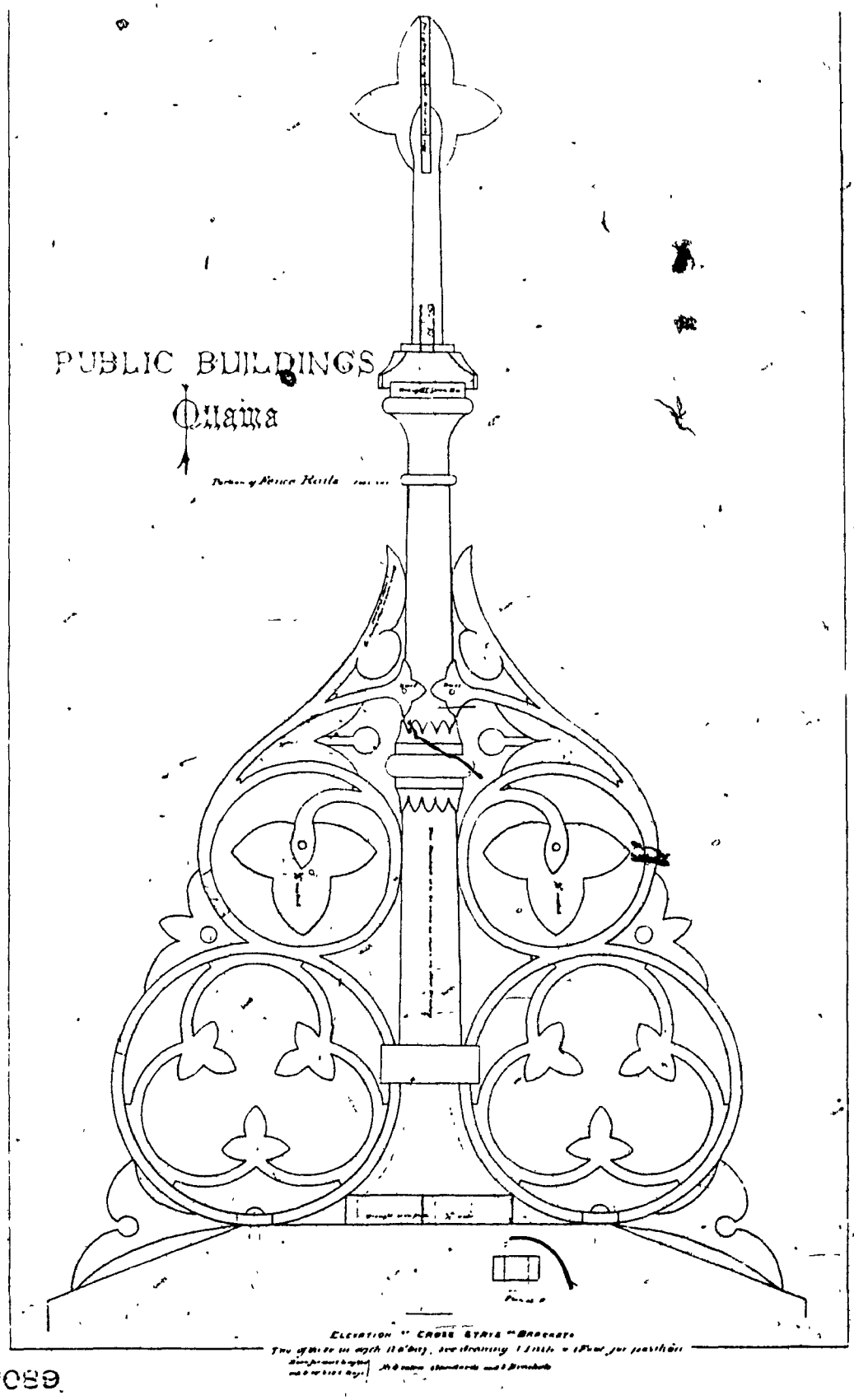

Public Works Series of Subjects, ... Iron gates to West block
Section at 'F'
Part Elevation of Standard
Section of Horizontal Bars
Section at 'C'.
Section at 'D'.
Half Elevation of Gate to West Block.
Plan at 'A'.
Plan at 'B'.
Plan at 'E'.
Scale 1 inch = 1 foot.
Details Full size.

Fig. 58.



3089

Fig. 59.

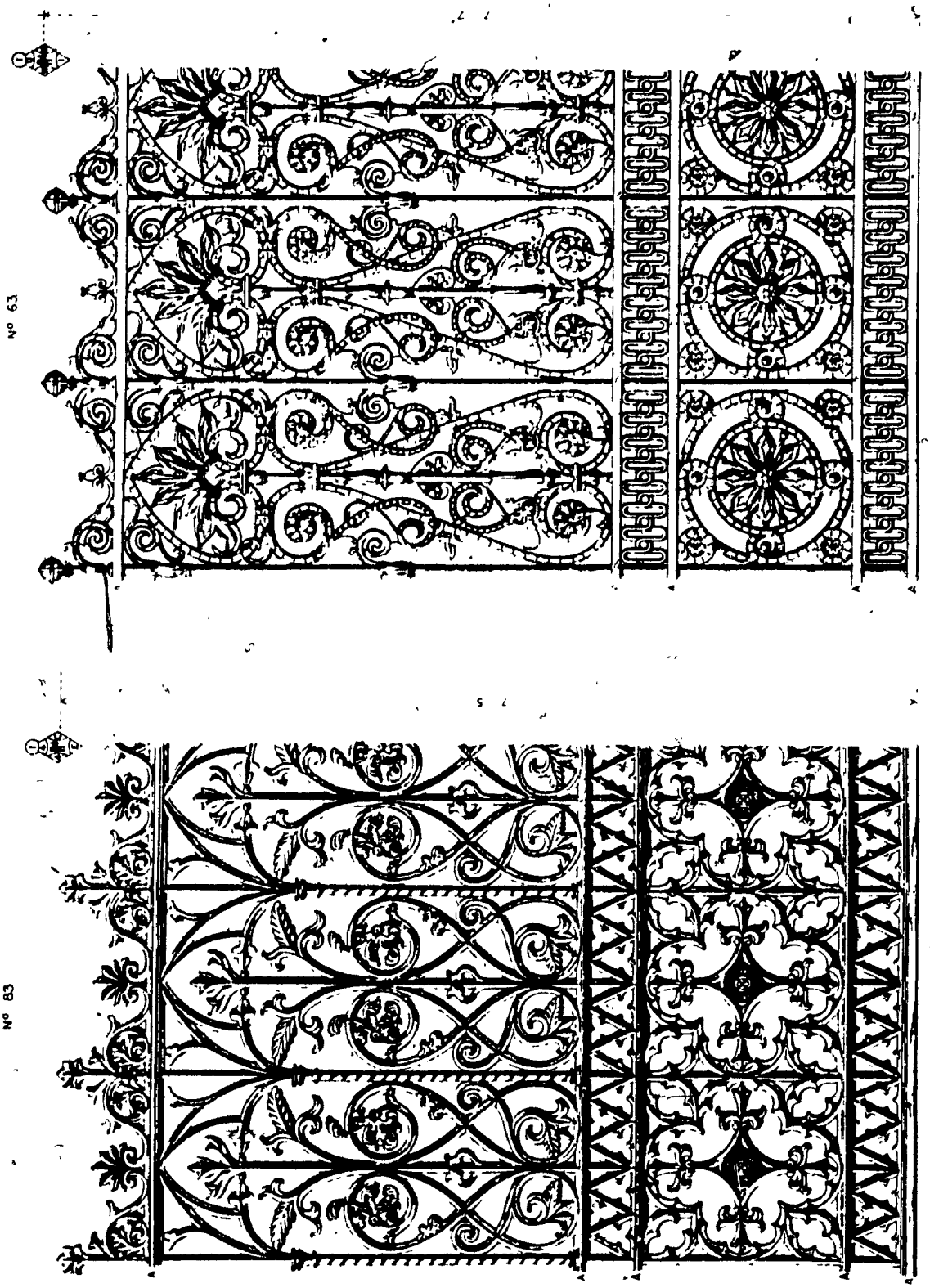


Fig. 60.

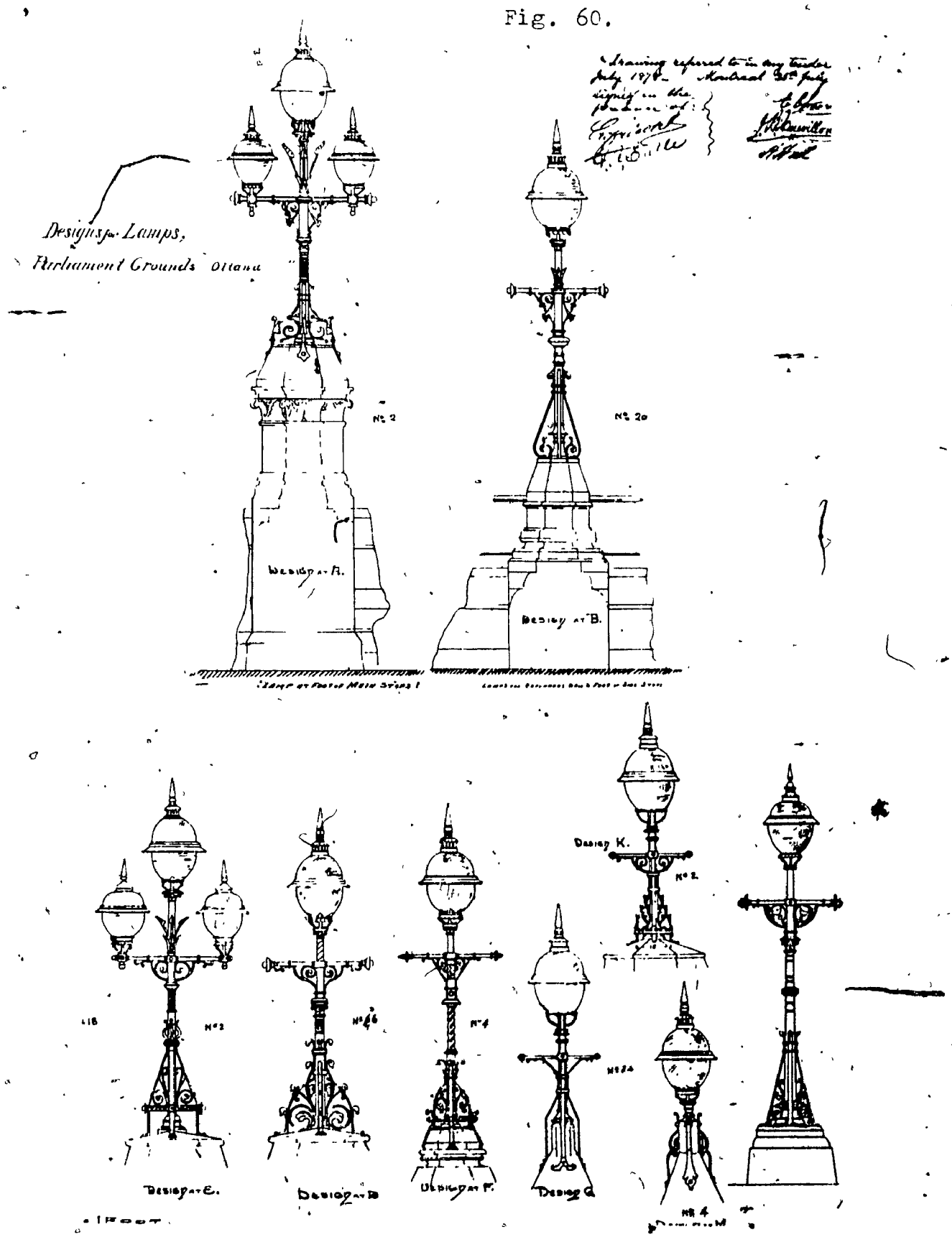

Designs for Lamps,
Parliament Grounds Ottawa
Design A.
Design B.
Design E.
Design D
Design F.
Design G
Design K.

Fig. 61.

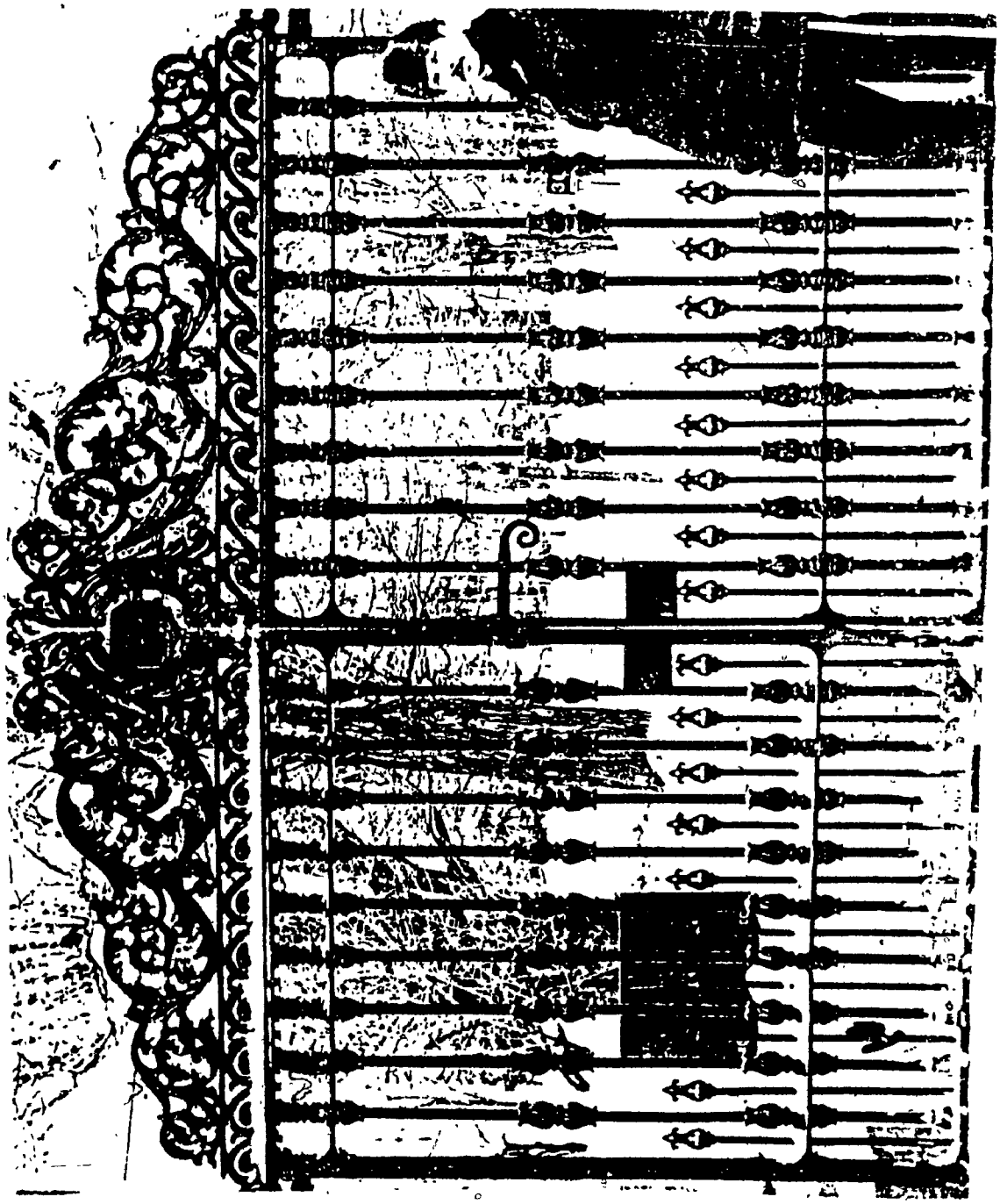


Fig. 62.

Fig. 63.

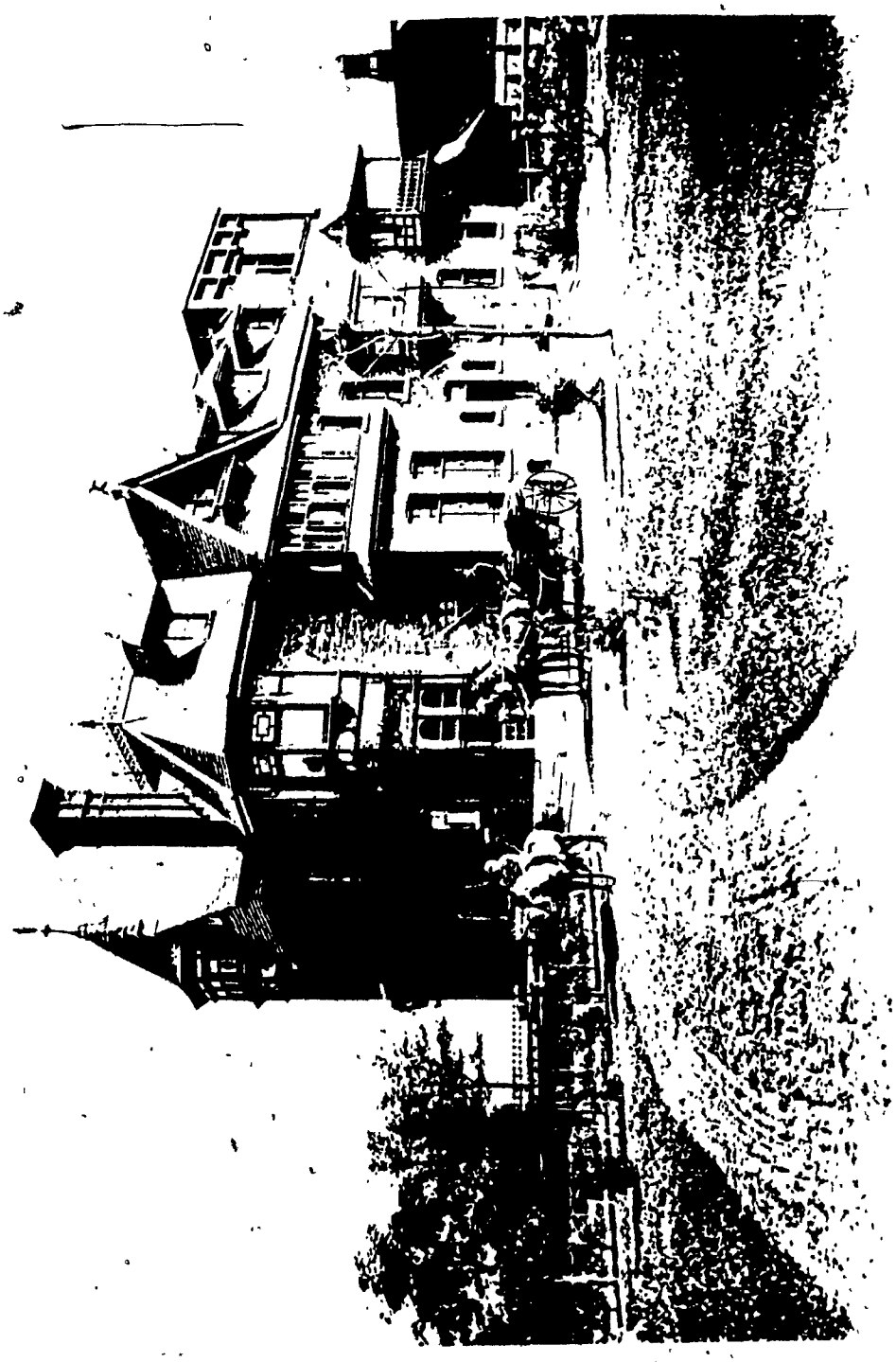


Fig. 64.

Fig. 65.

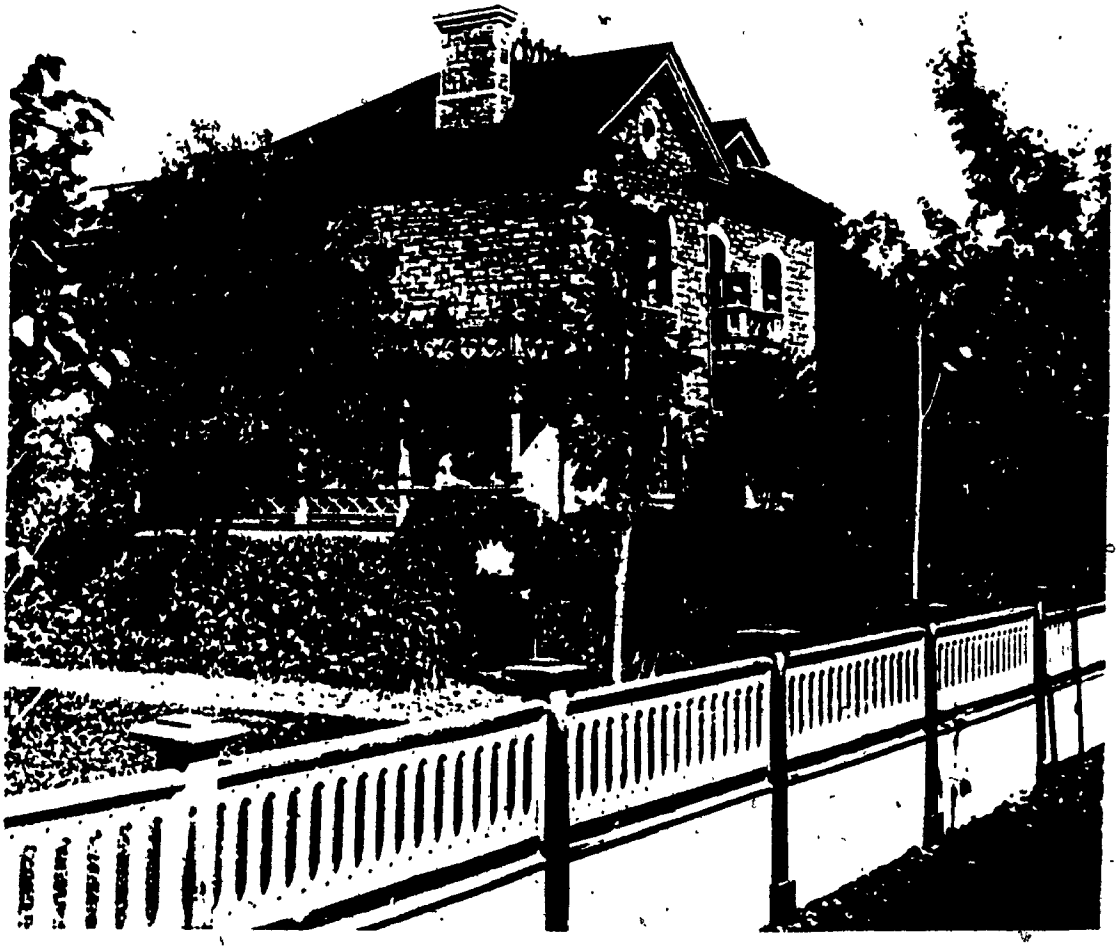
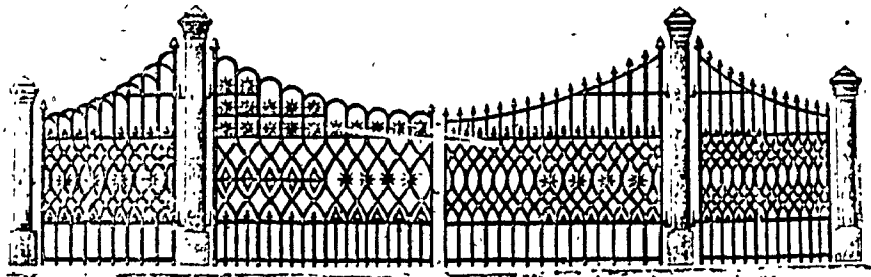


Fig. 66.

Fig. 67.

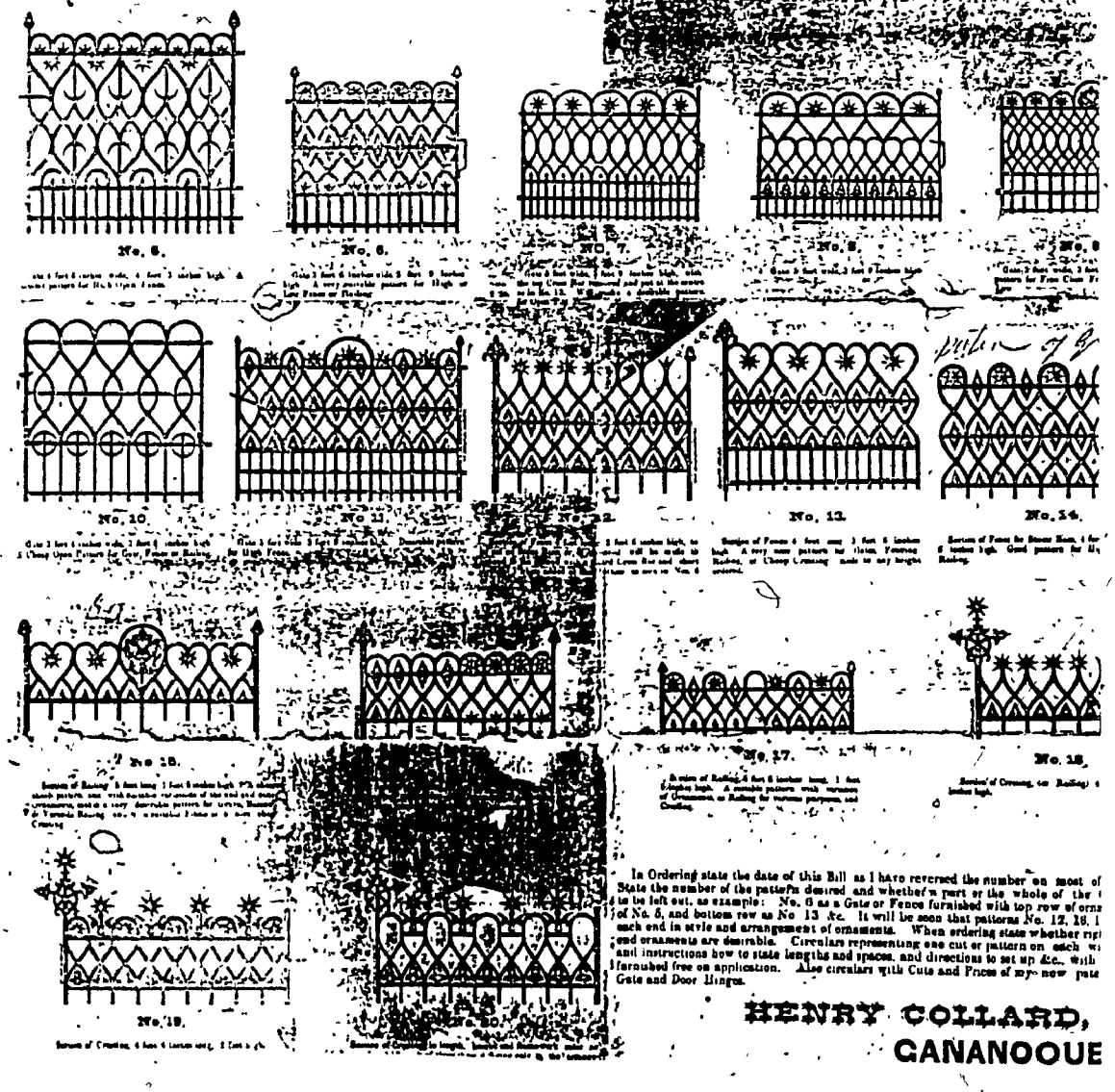
Collard's Patent Wrought Iron Fences, Gates, Railing and Crest



No. 1, 8 Feet Wide. No. 2. 8 Feet Wide. No. 3. 8 Feet Wide. No. 4. 8 Feet Wide.

A SET OF ENTRANCE GATES,

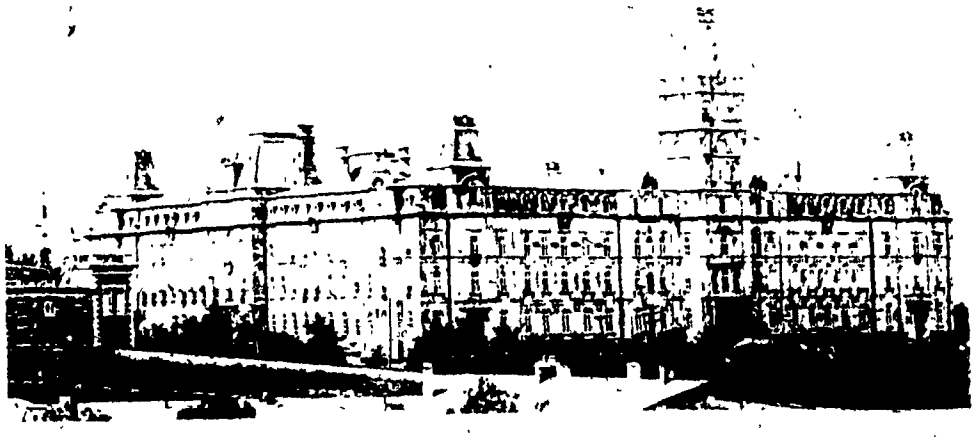
Represents a set of one double and two single Entrance Gates showing four different patterns, as seen in the cut. The Double Gates are 8 feet wide each, 12 feet between the posts are 3 feet wide 1 feet 8 inches between the posts, and 5 feet 9 inches high at the lowest, and 5 feet 6 inches at the highest points. The prices vary according to the patterns. The prices given include all the Hinges Latches and Bolts complete with gates of all patterns, both double and single. Posts not included unless ordered.



In Ordering state the date of this Bill as I have reversed the number on most of
State the number of the pattern desired and whether a part or the whole of the
to be left out, as example: No. 6 as a Gate or Fence furnished with top row of orna
of No. 5, and bottom row as No 13 &c. It will be seen that patterns No. 12, 18, 1
each end in style and arrangement of ornaments. When ordering state whether rig
end ornaments are desirable. Circulars representing one cut or pattern on each w
and instructions how to state lengths and spaces, and directions to set up &c., with
Furnished free on application. Also circulars with Cuts and Prices of my new pate
Gate and Door Hinges.

HENRY COLLARD,
CANANOQUE

Fig. 68a.



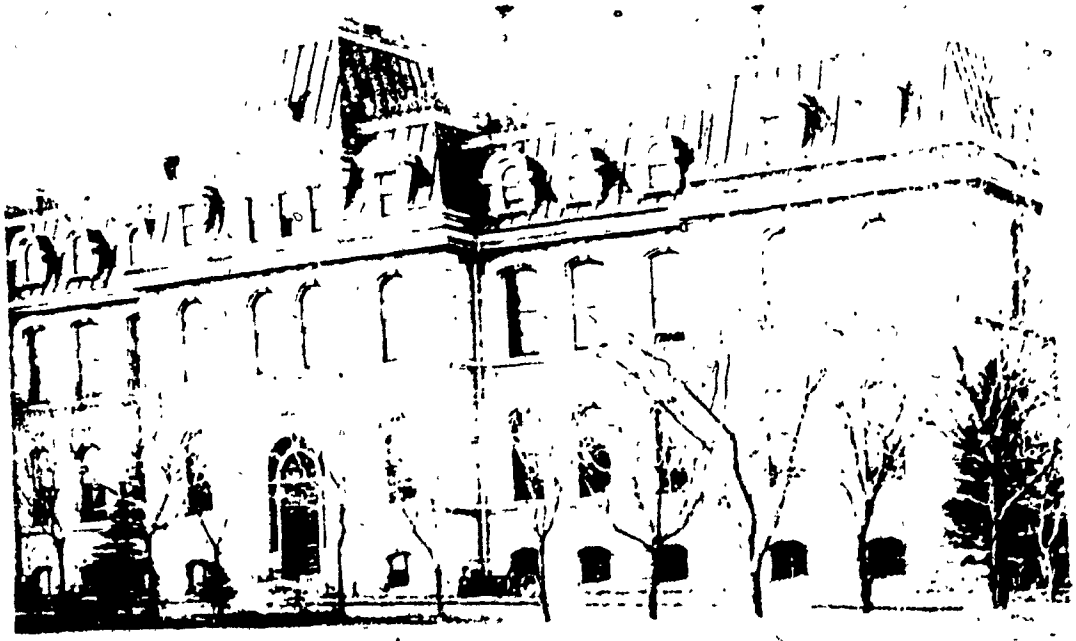


Fig. 68b.

Fig. 69.

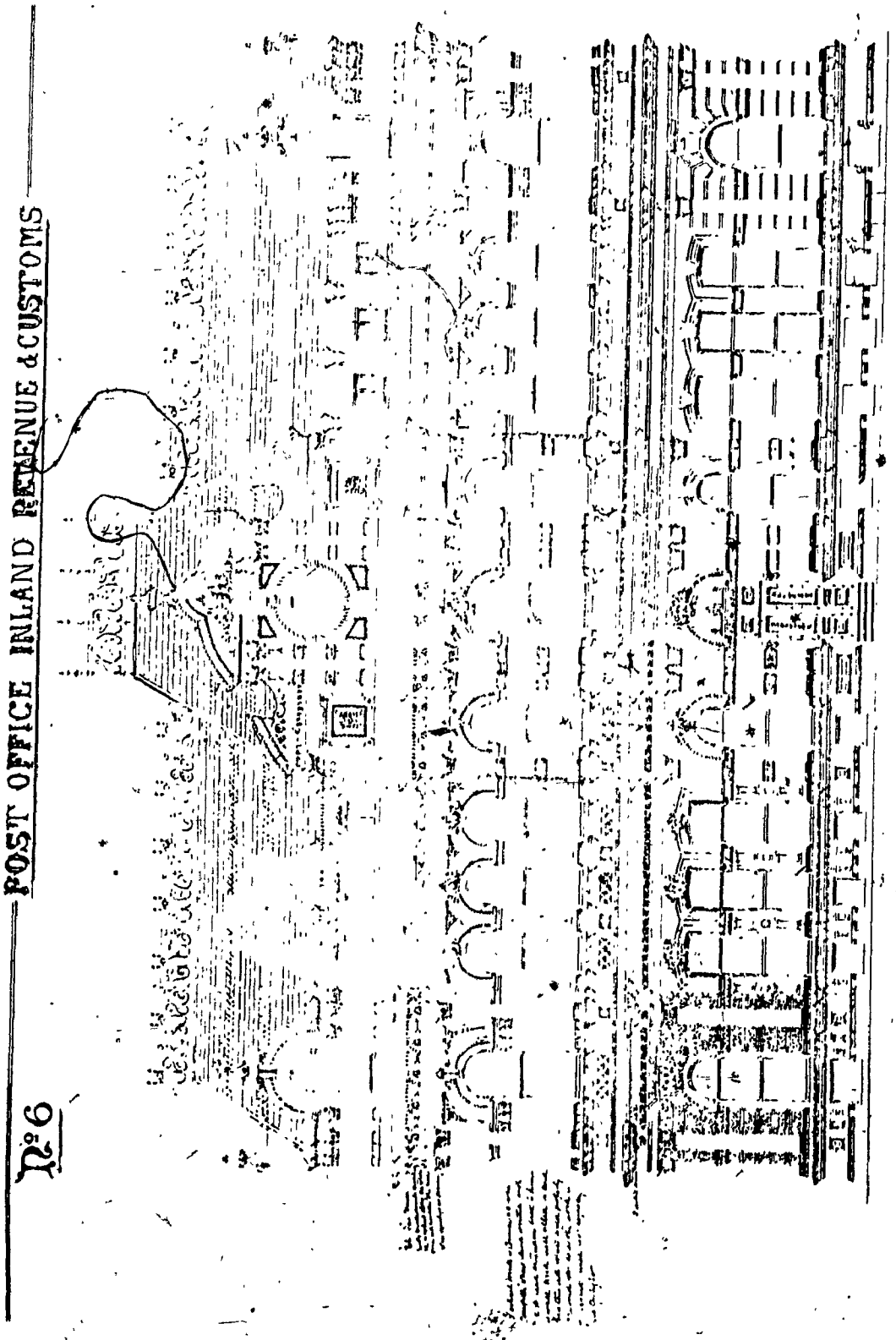


Fig. 70.

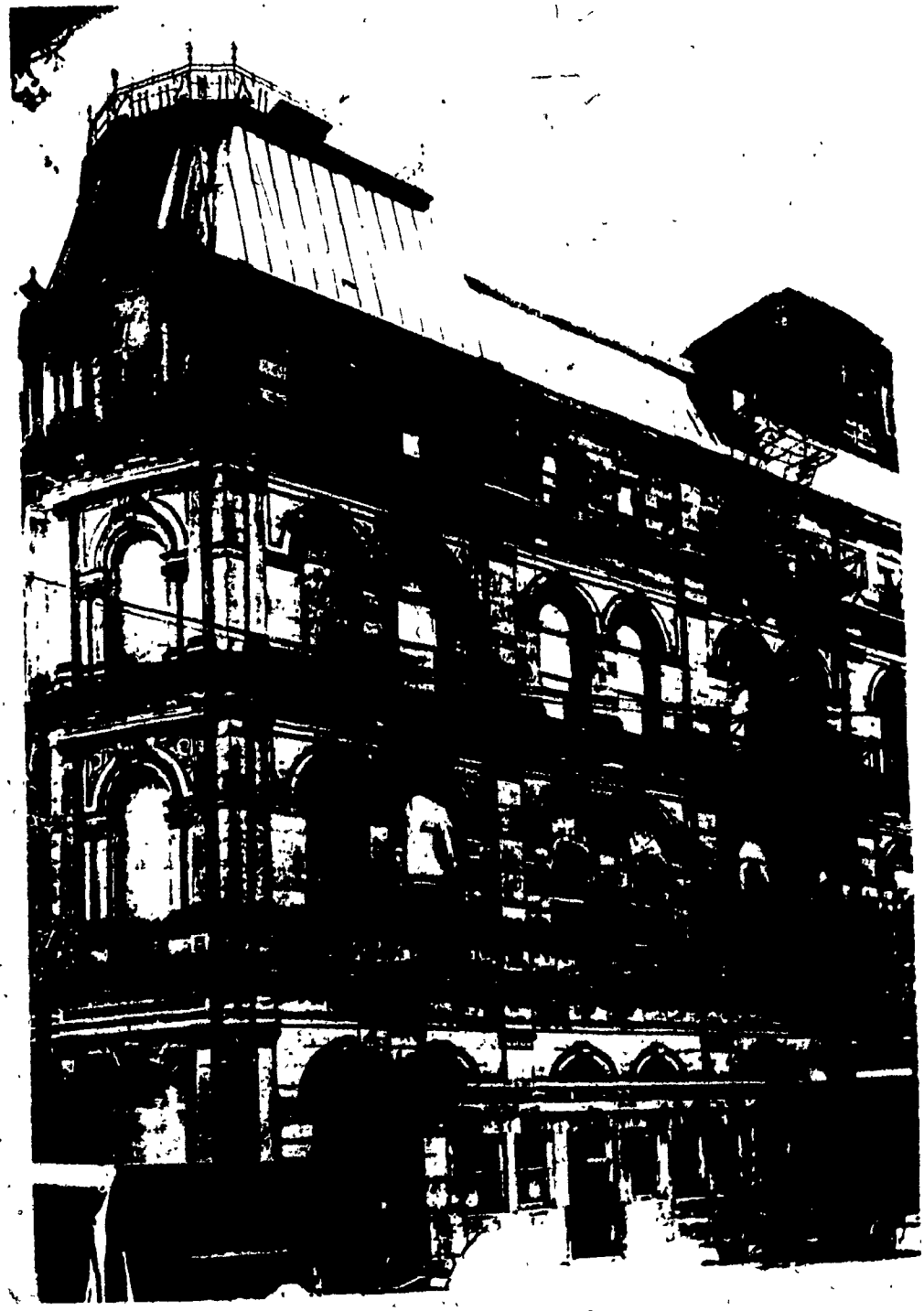


Fig. 71.

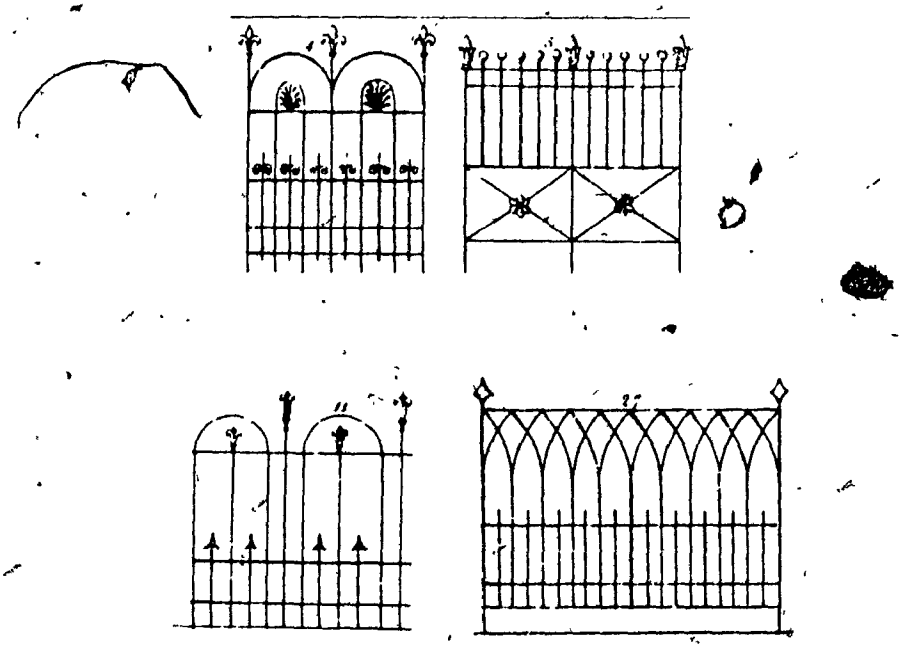


Fig. 72.

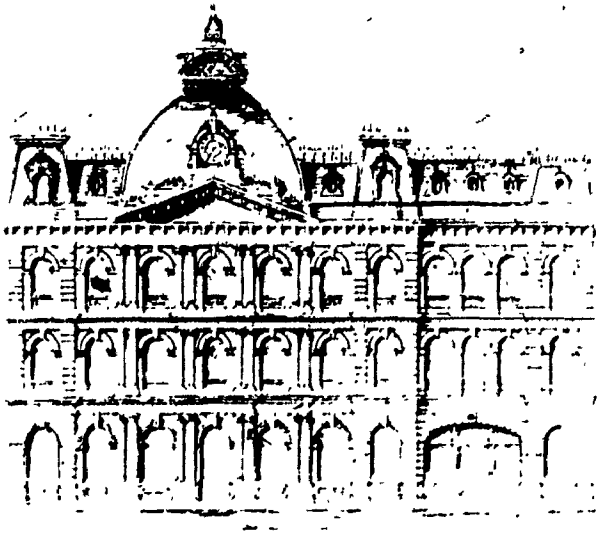


Fig. 73.

Fig. 74.

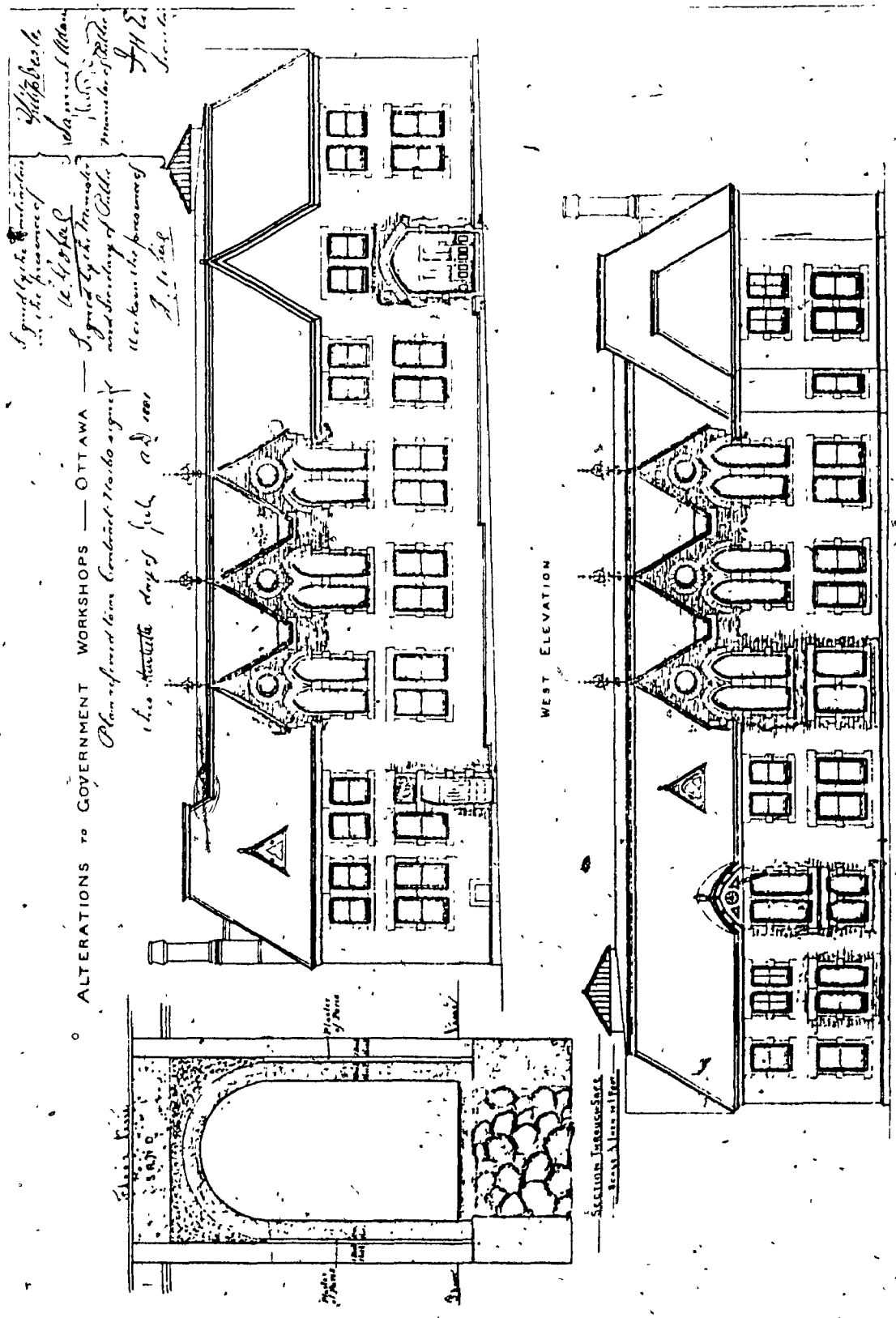

ALTERATIONS TO GOVERNMENT WORKSHOPS — OTTAWA —
WEST ELEVATION

Fig. 7b.

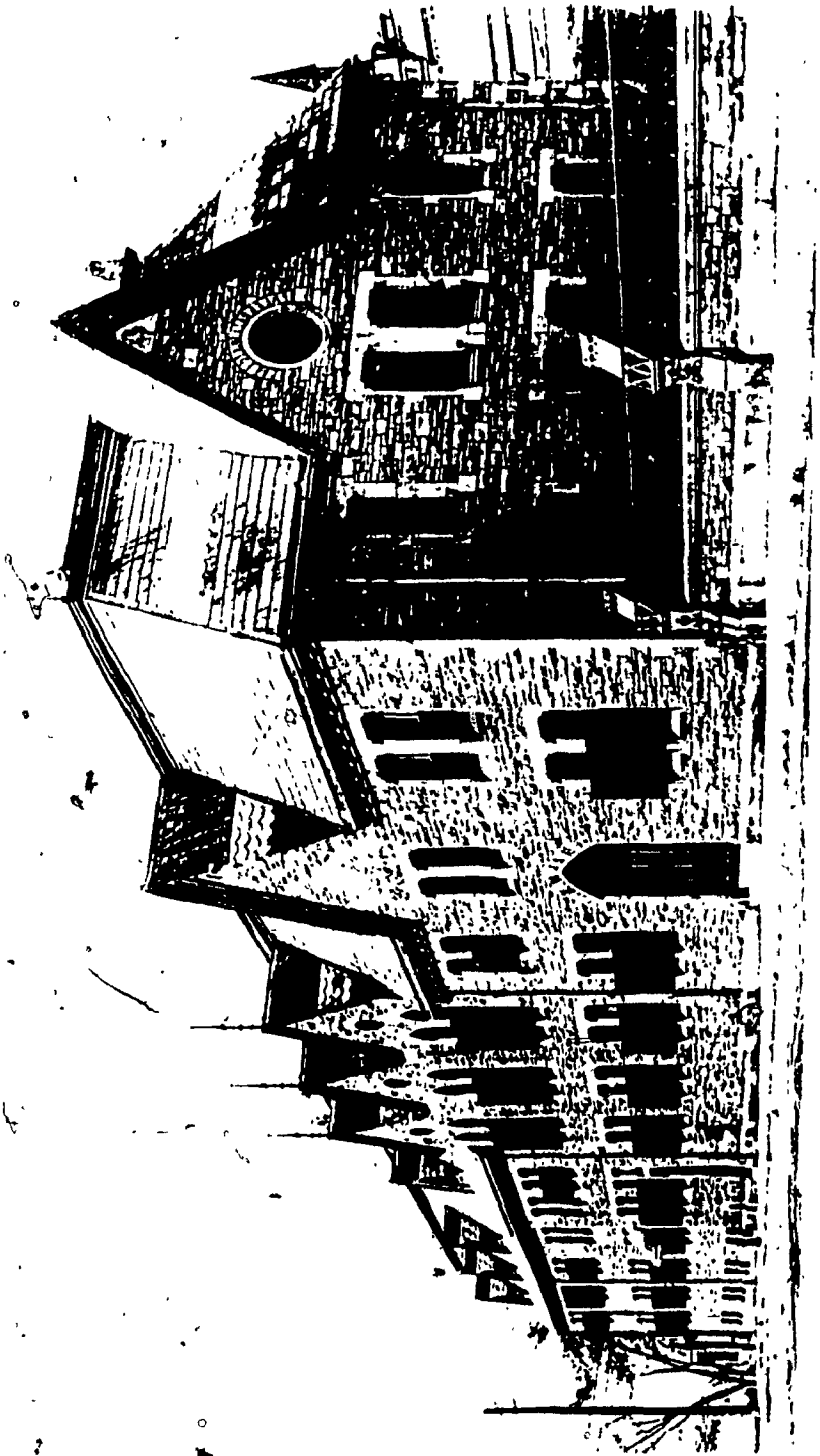


Fig. 76a.

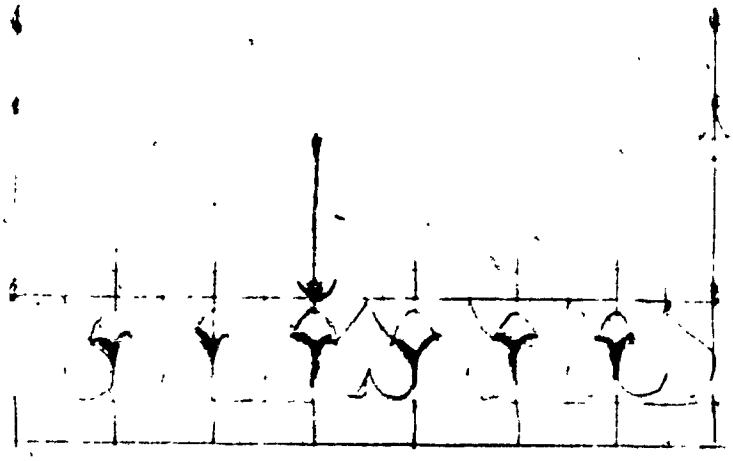
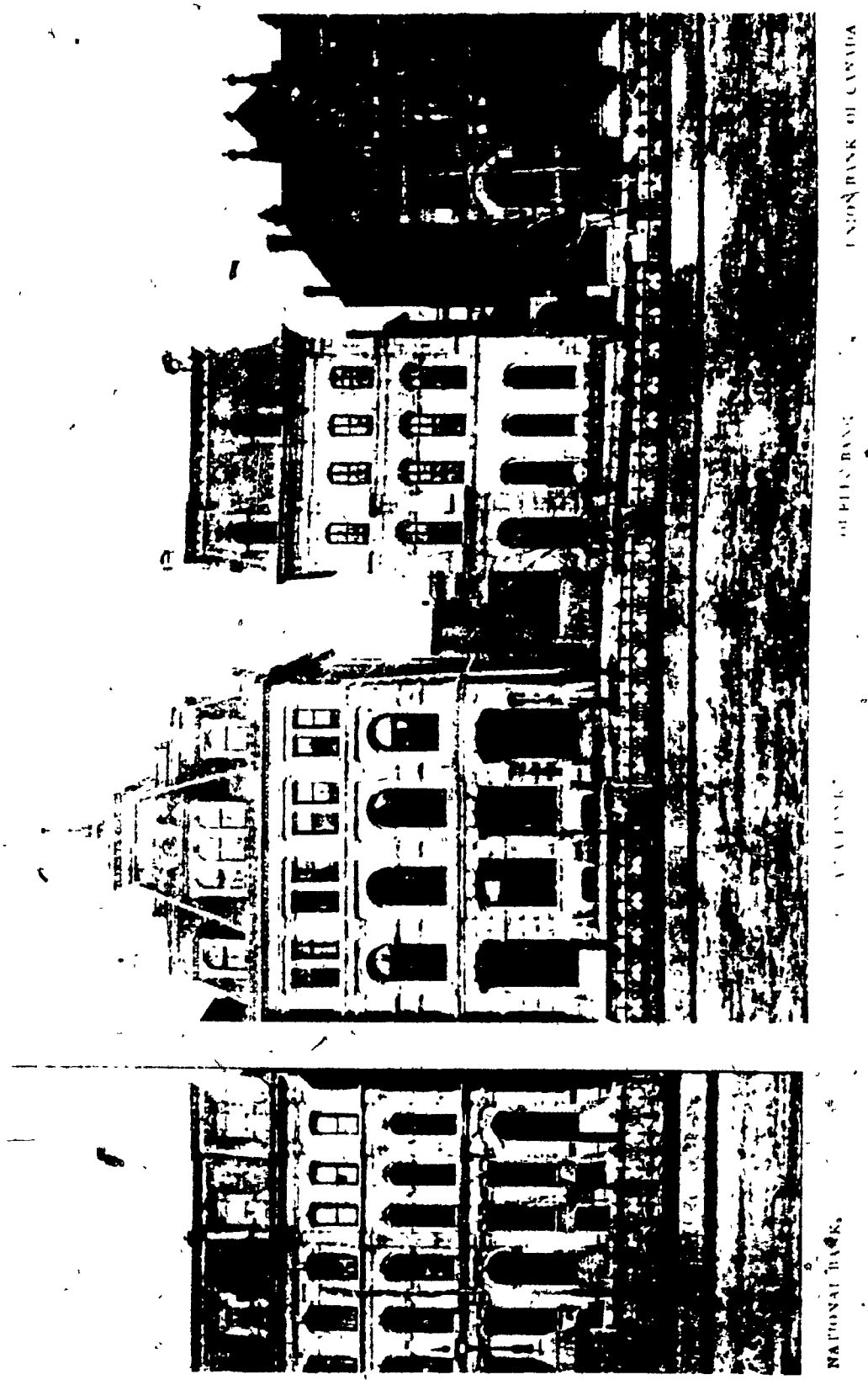


Fig. 76b.

Fig. 77.



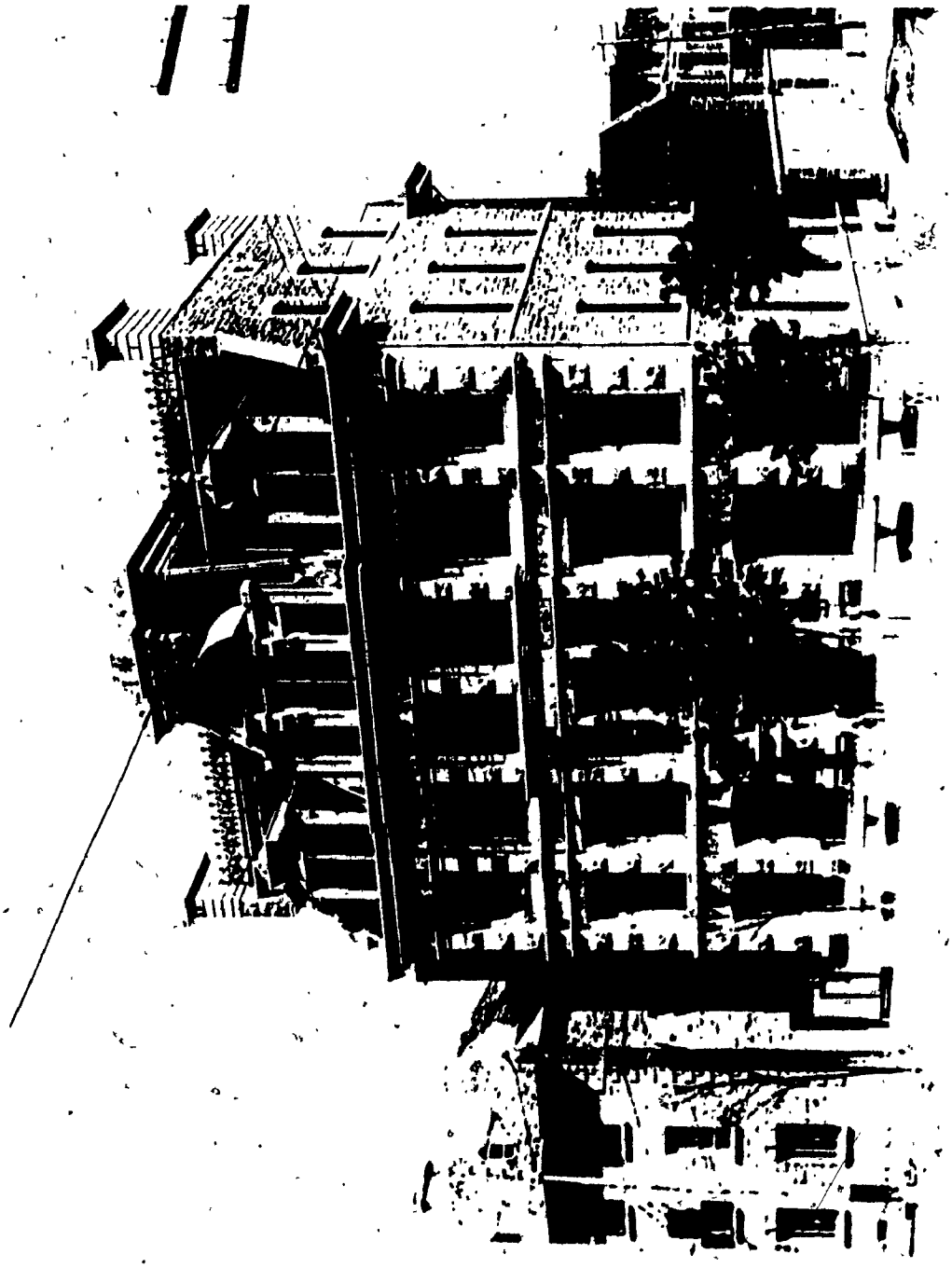


Fig. 79.

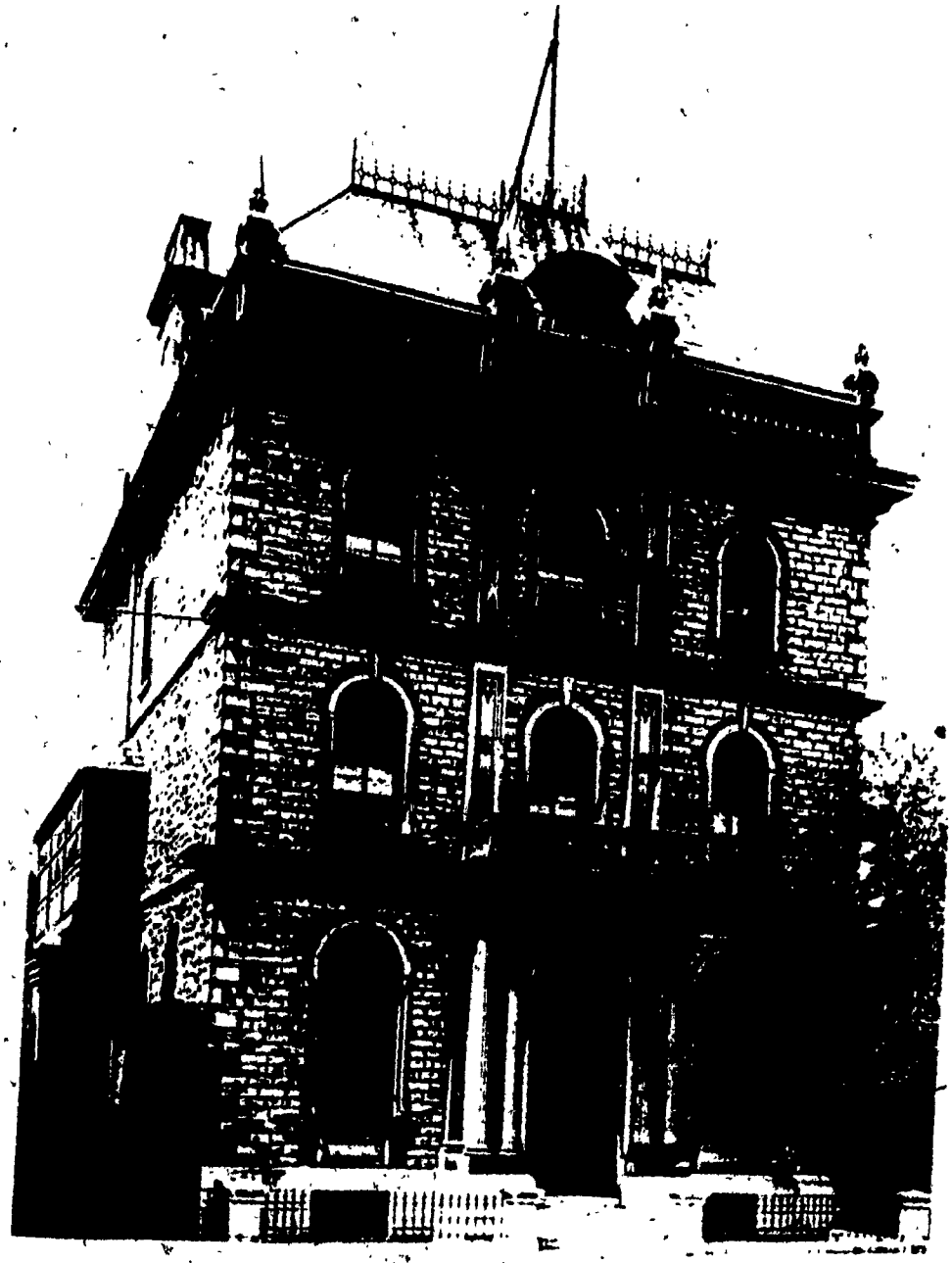
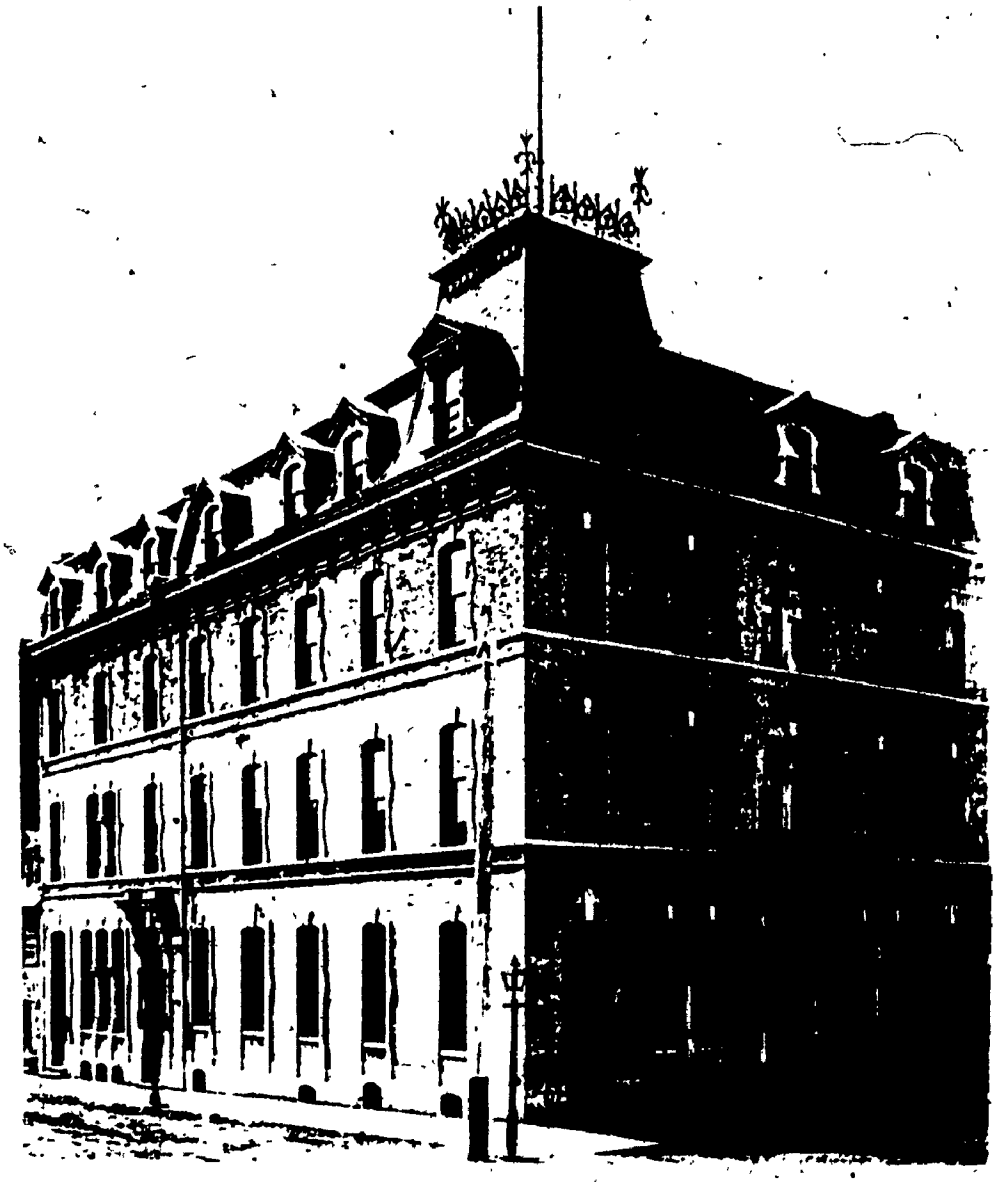


Fig. 50.



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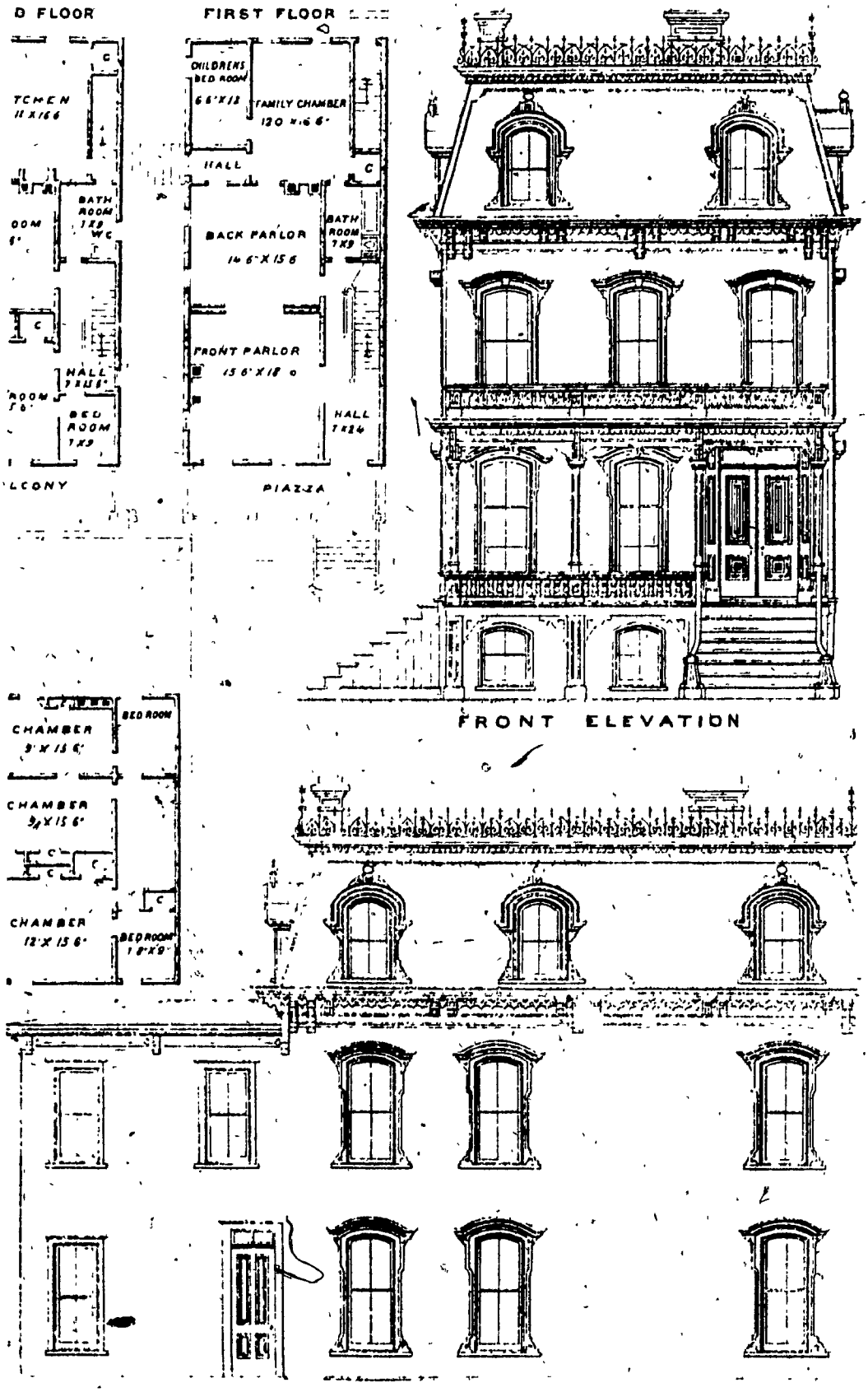
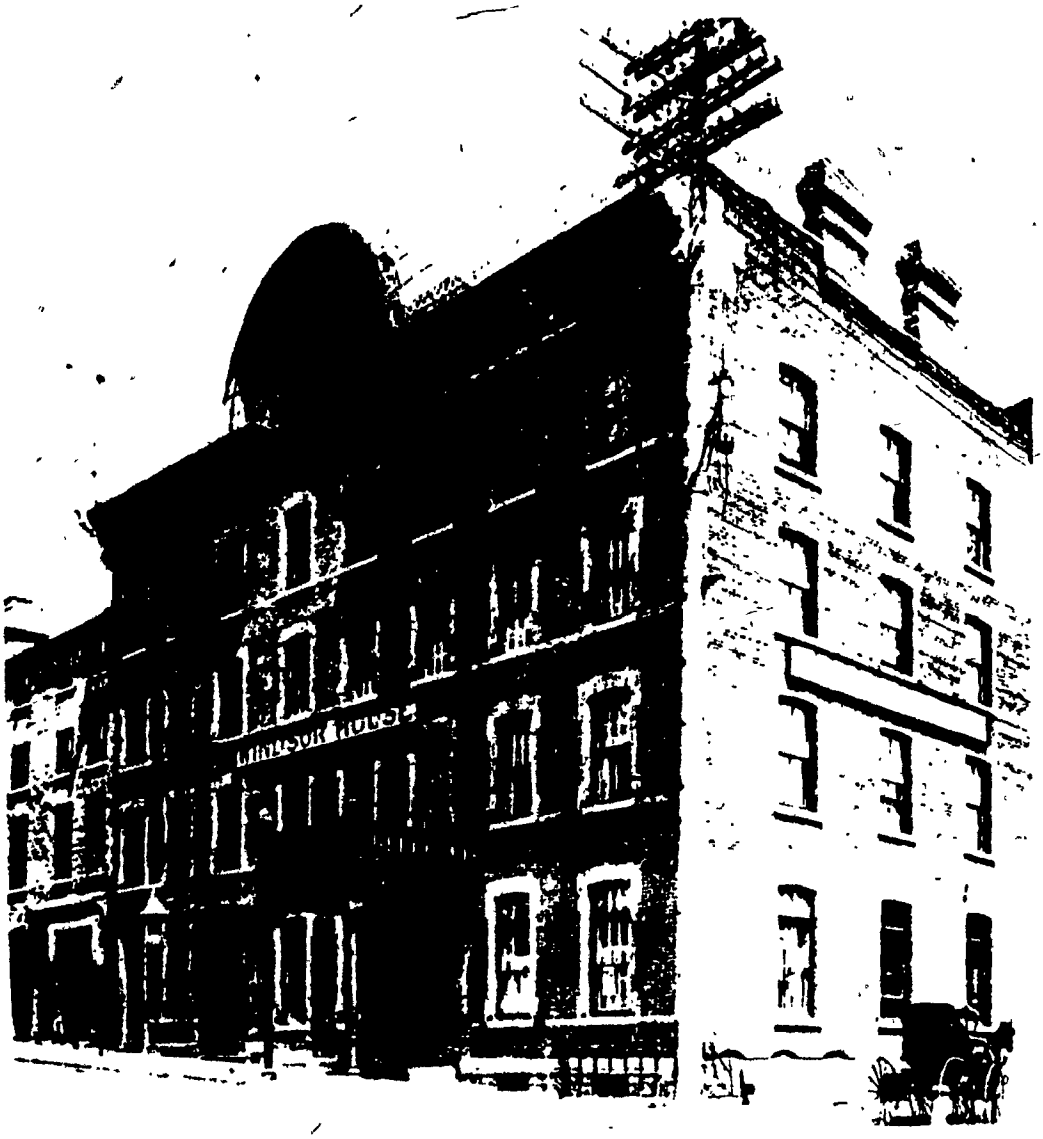

D FLOOR
FIRST FLOOR
CHILDRENS BED ROOM
FAMILY CHAMBER
HALL
BACK PARLOR
BATH ROOM
FRONT PARLOR
HALL
PIAZZA
CHAMBER
BED ROOM
CHAMBER
CHAMBER
BED ROOM
FRONT ELEVATION

Fig. 82a.

Fig. 82b.

Fig. 83a.



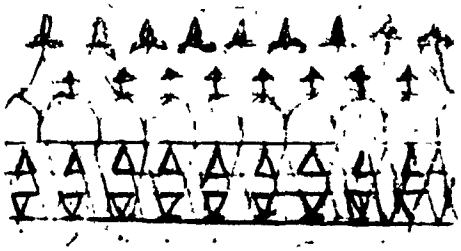
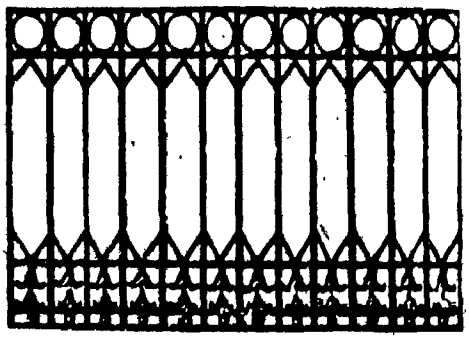
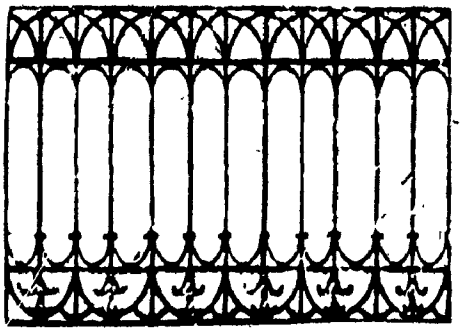


Fig. 83b.

Fig. 84.





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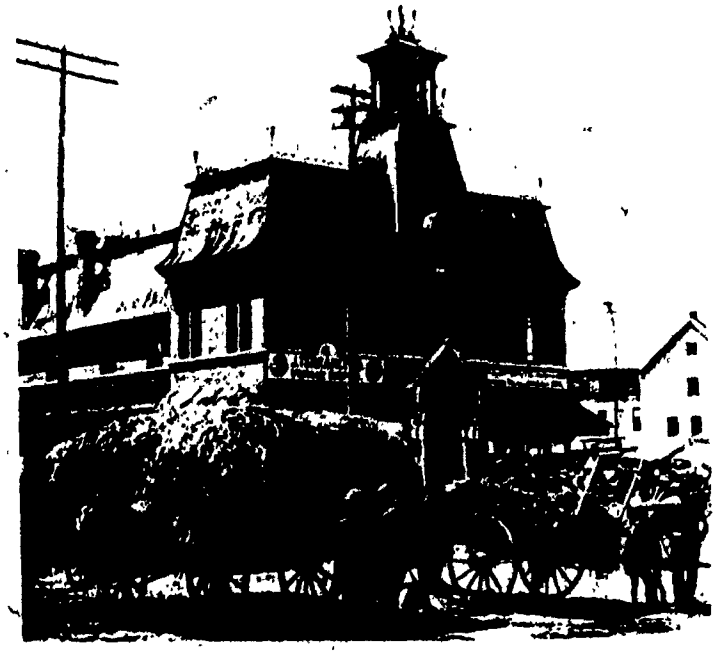
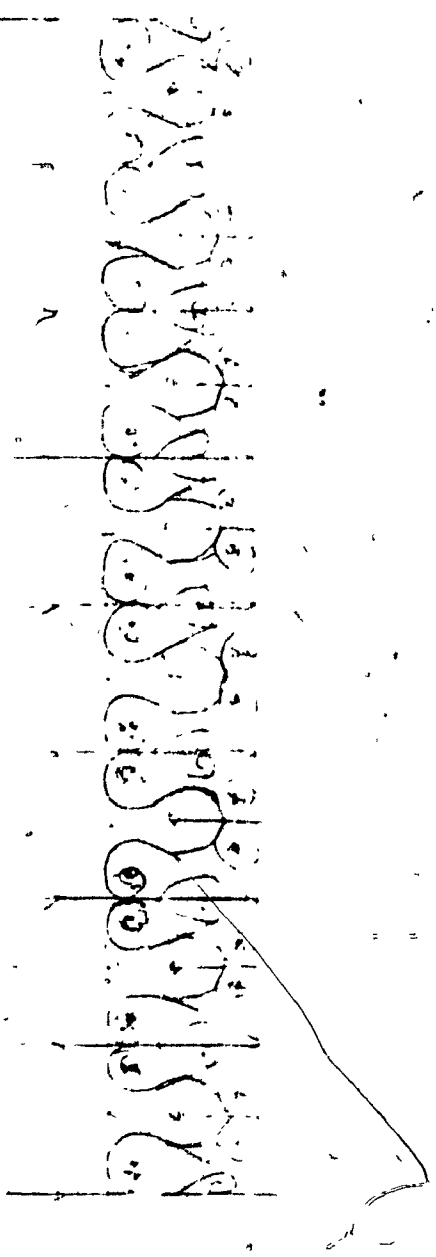


Fig. 86a.

Fig. 86b.



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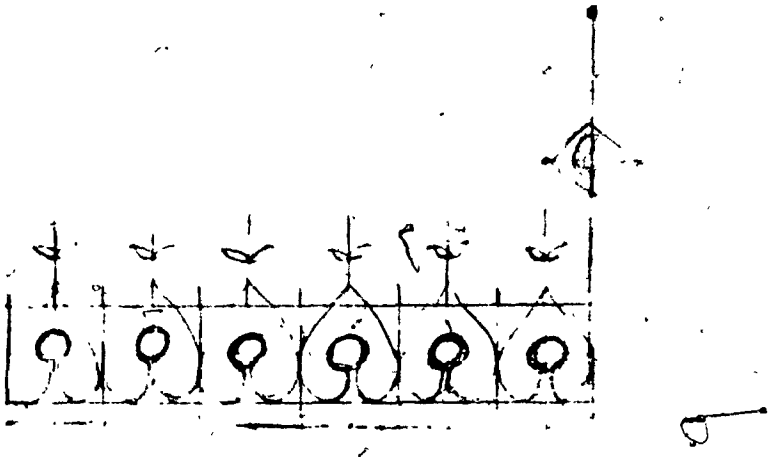
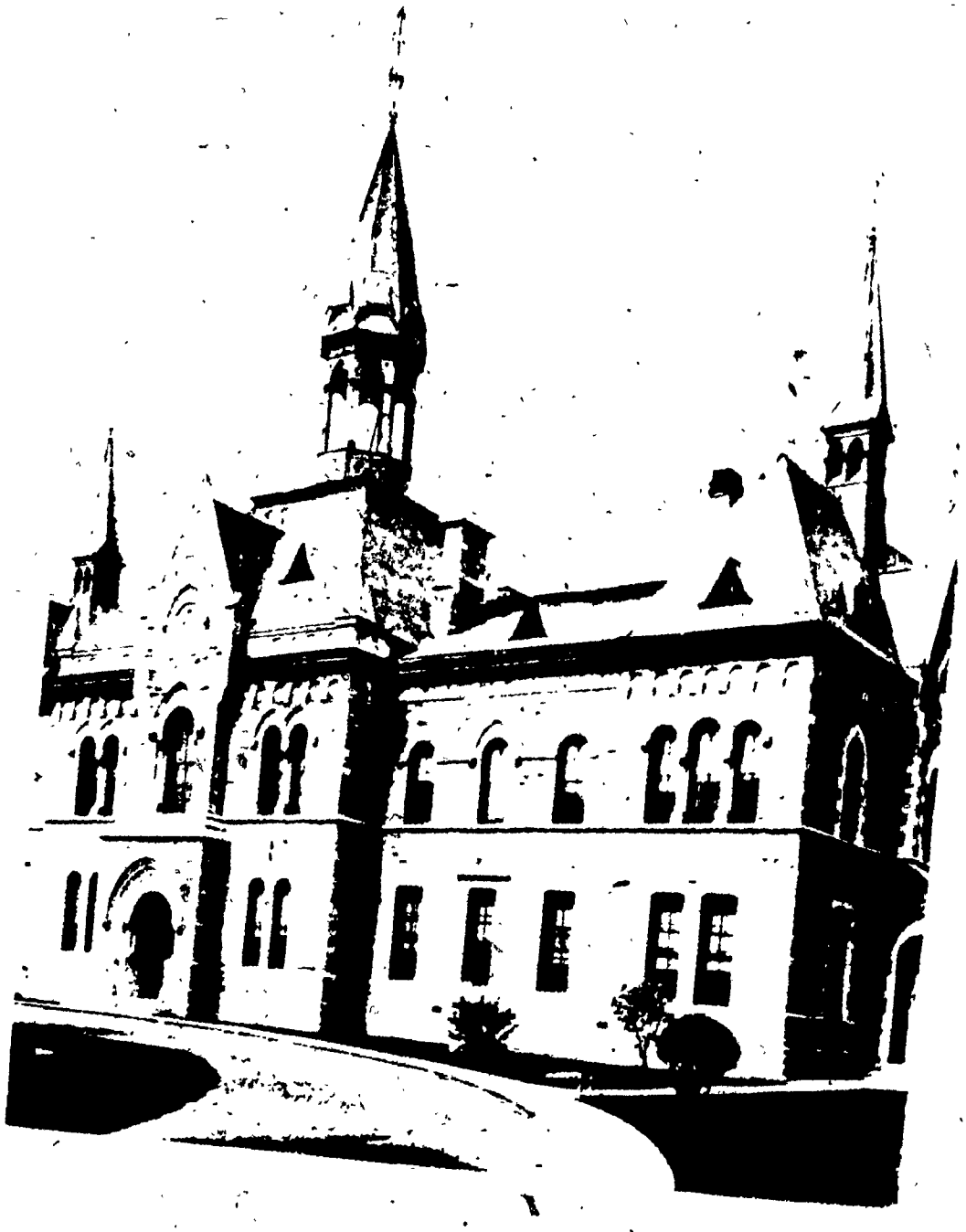


Fig. 87b.

Fig. 95.



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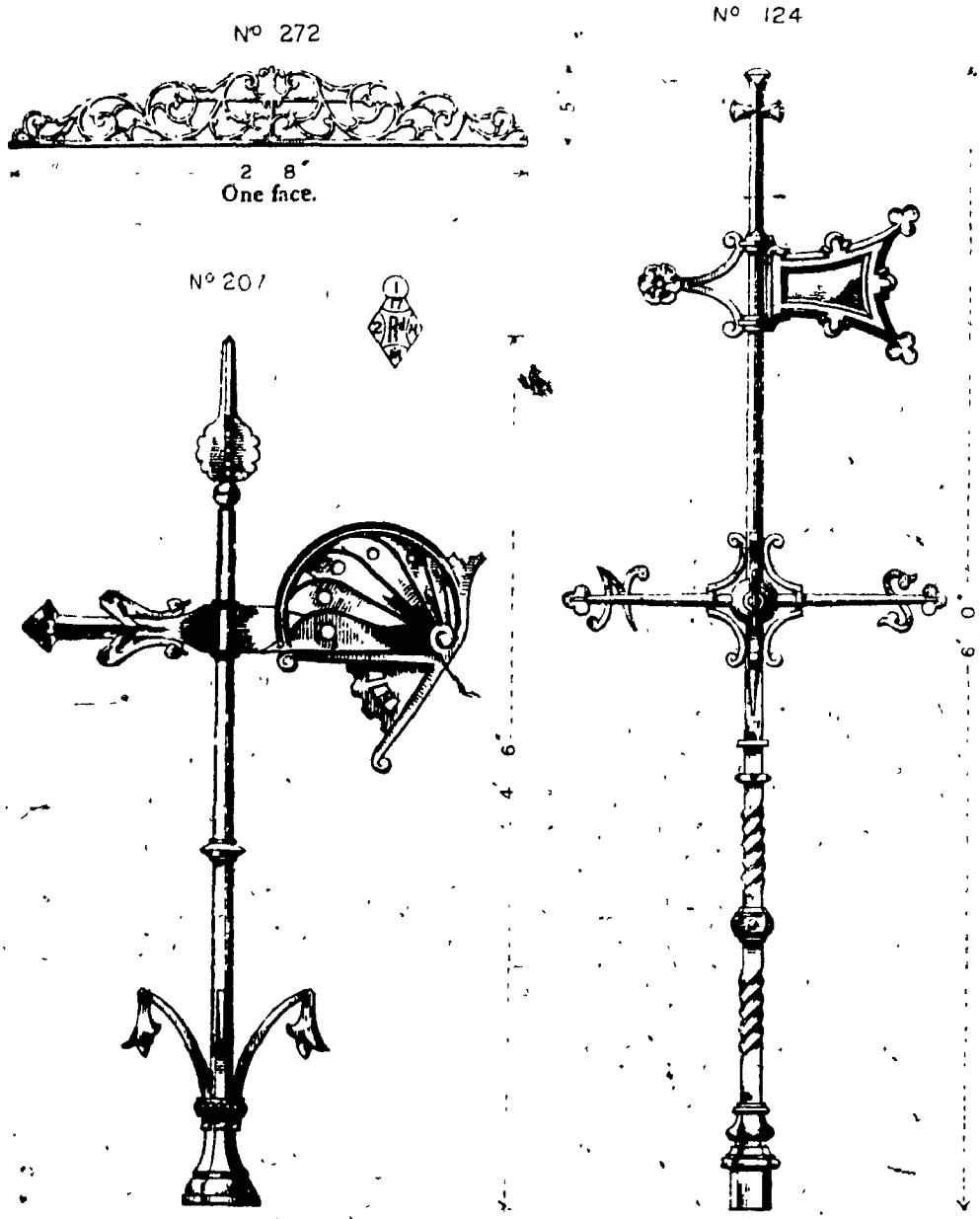


Fig. 90a.

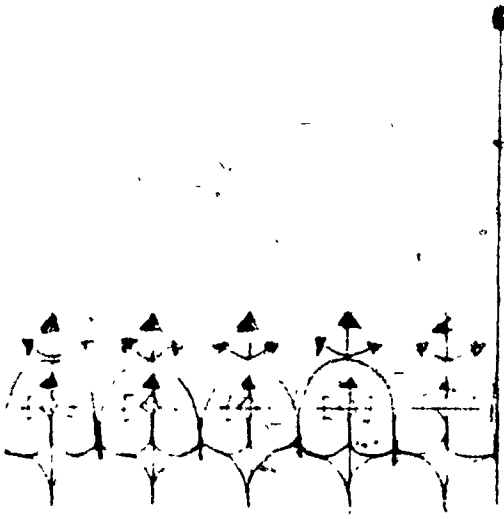


Fig. 90b.

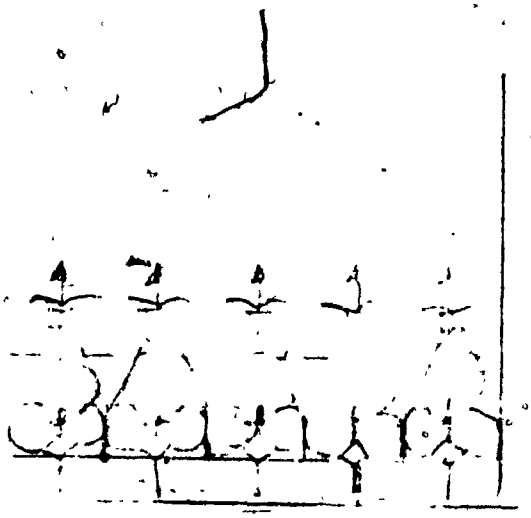
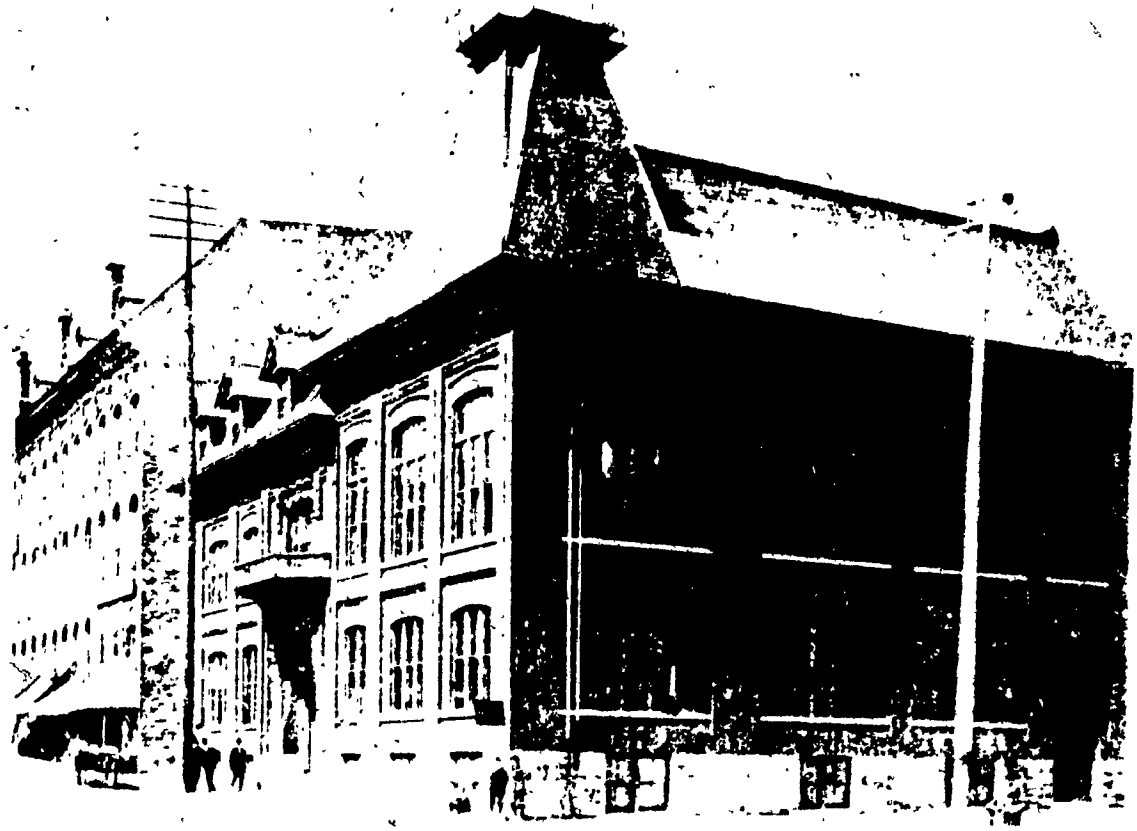


Fig. 90c.

Fig. 91a.



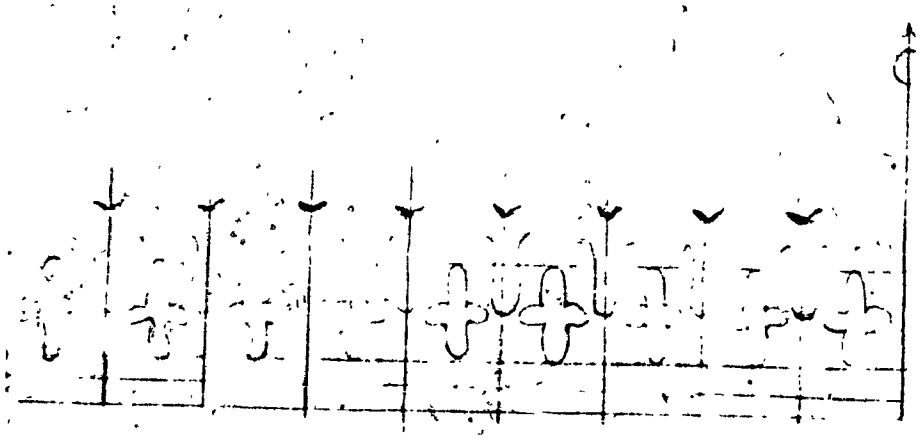


Fig. 91b.

Fig. 92.

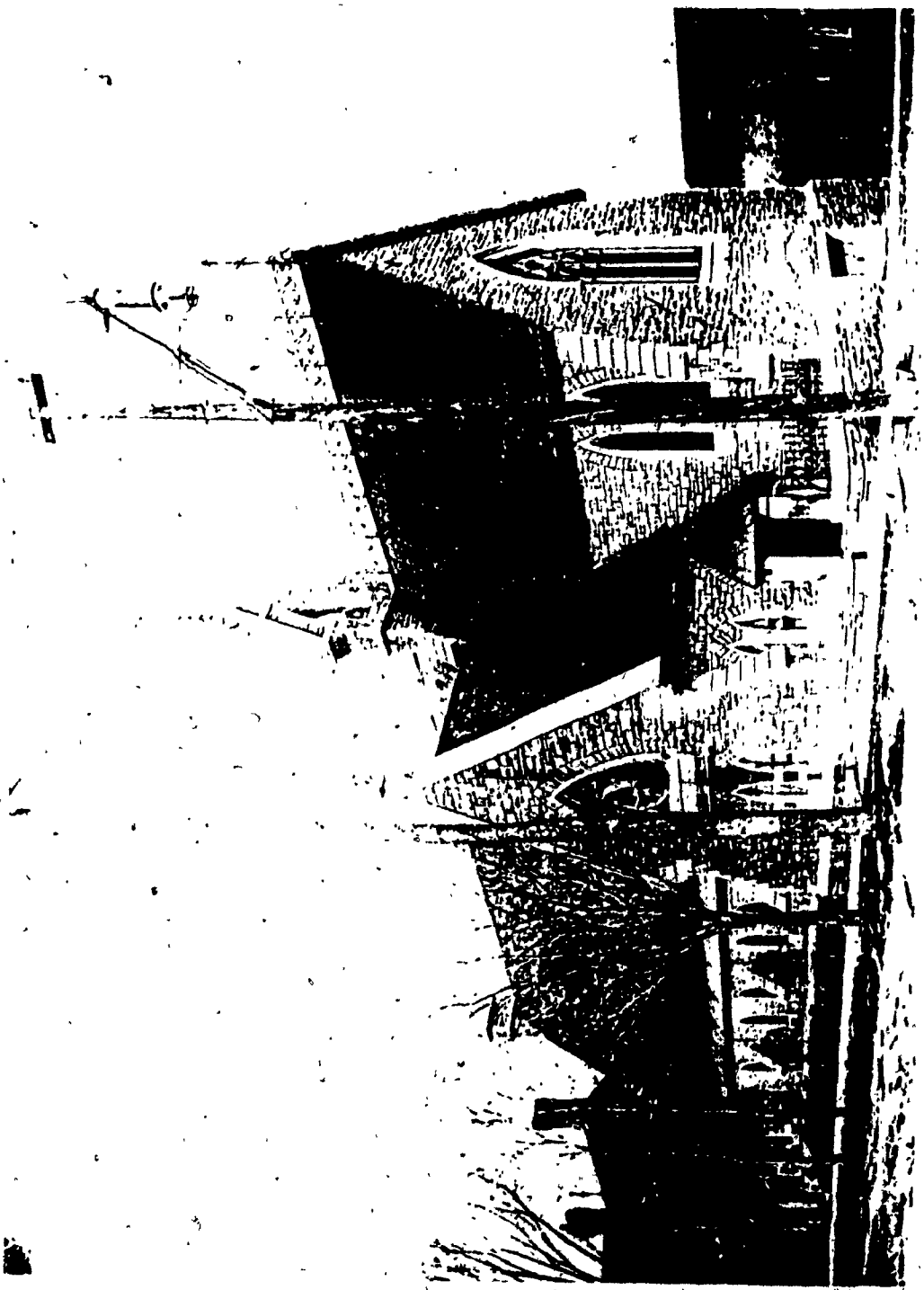
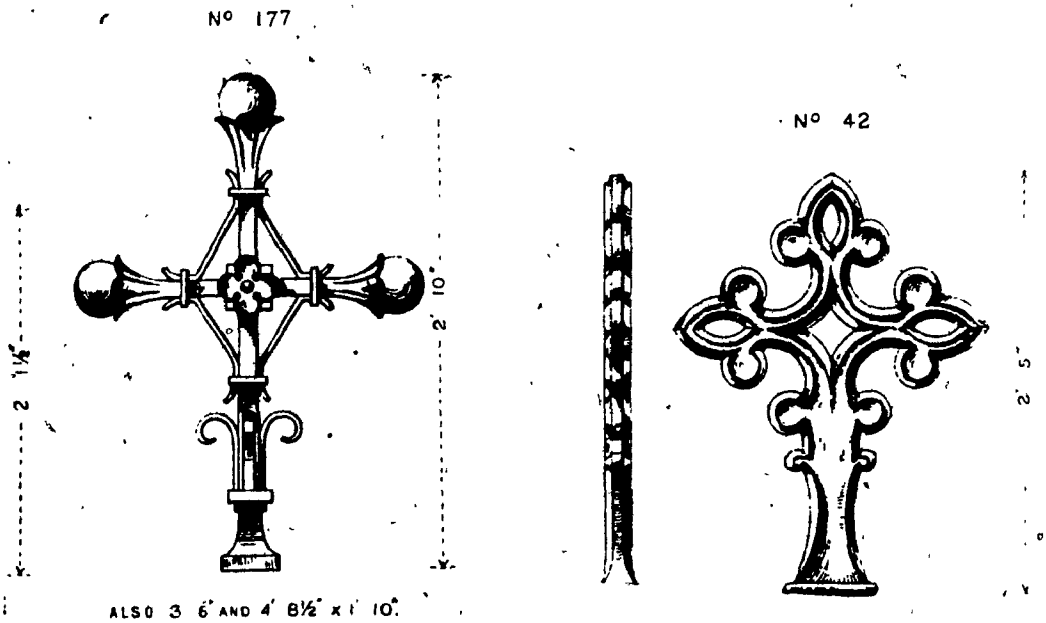


Fig. 93a.



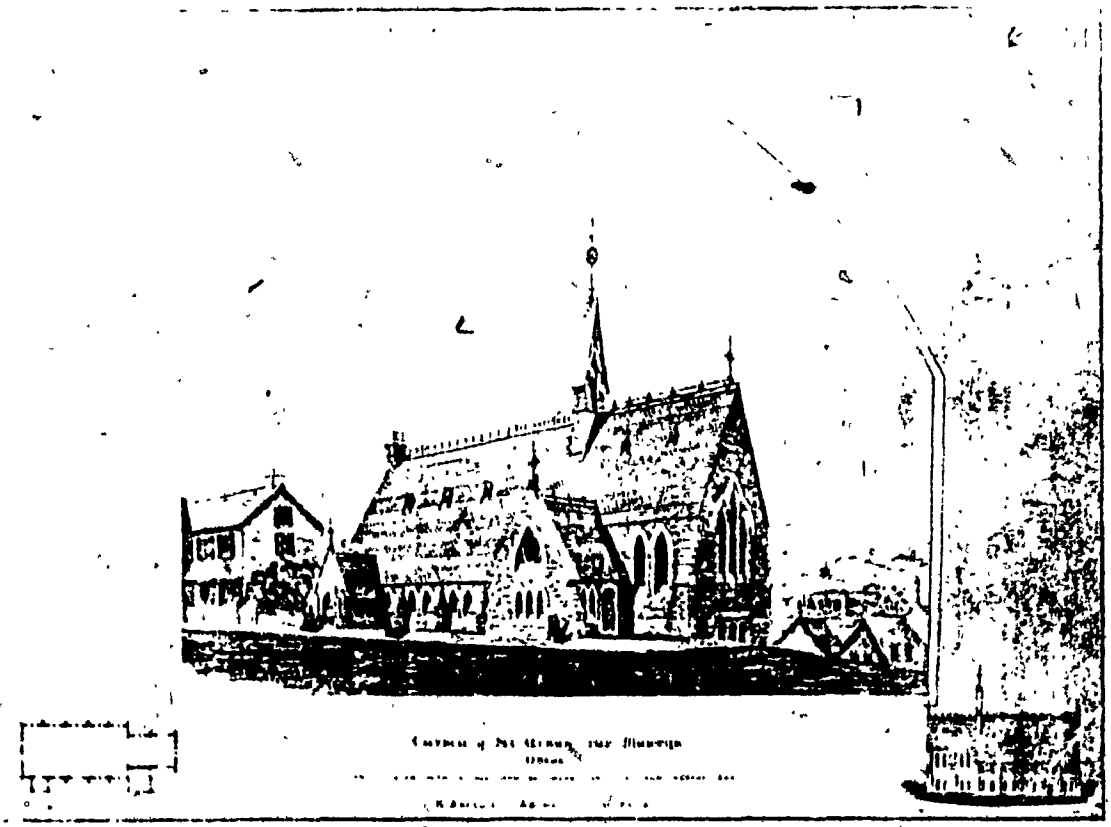
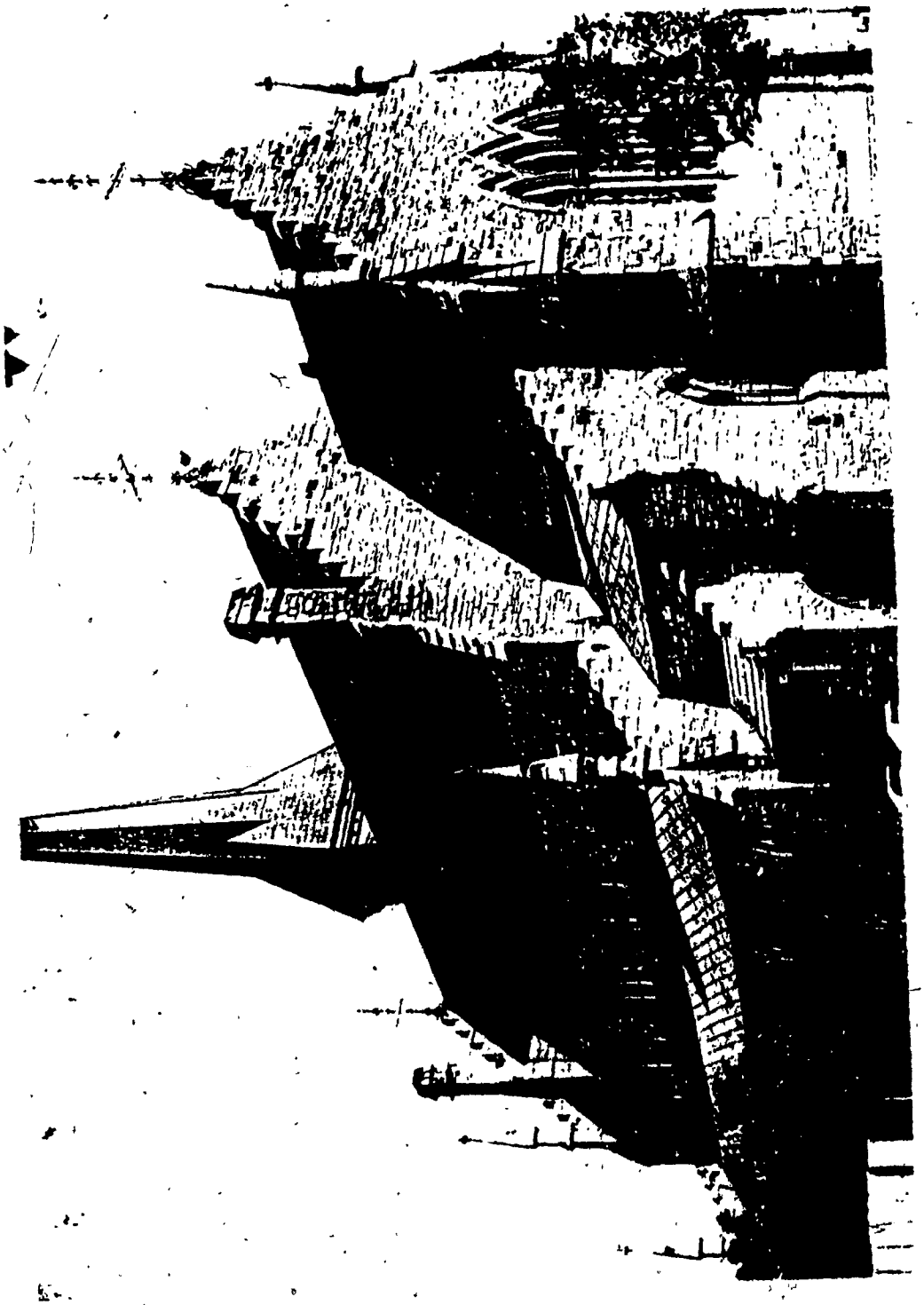


Fig. 93b.

Fig. 84.



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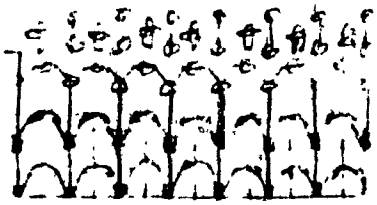
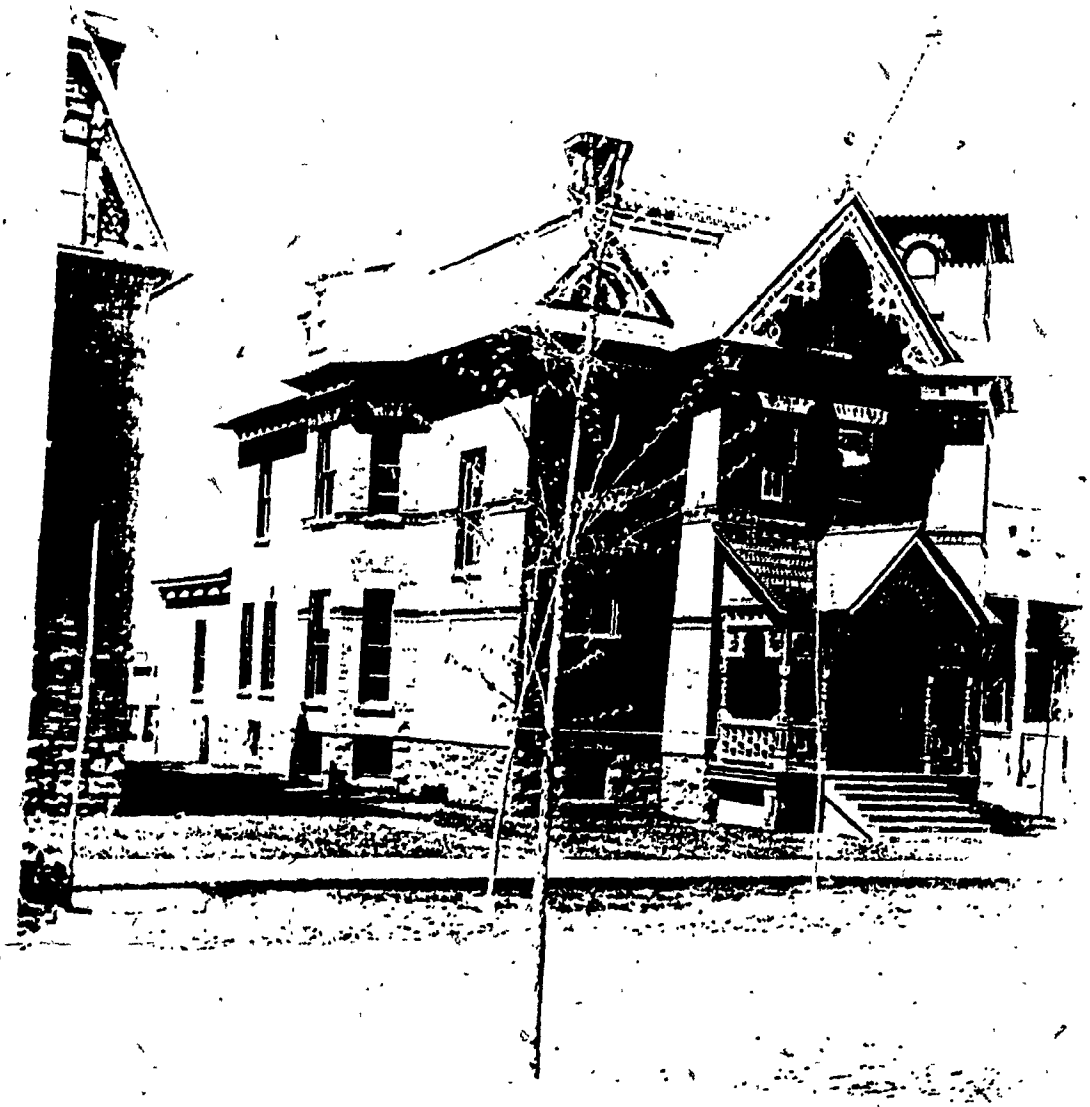


Fig. 95b.

Fig. 96.

Fig. 97.



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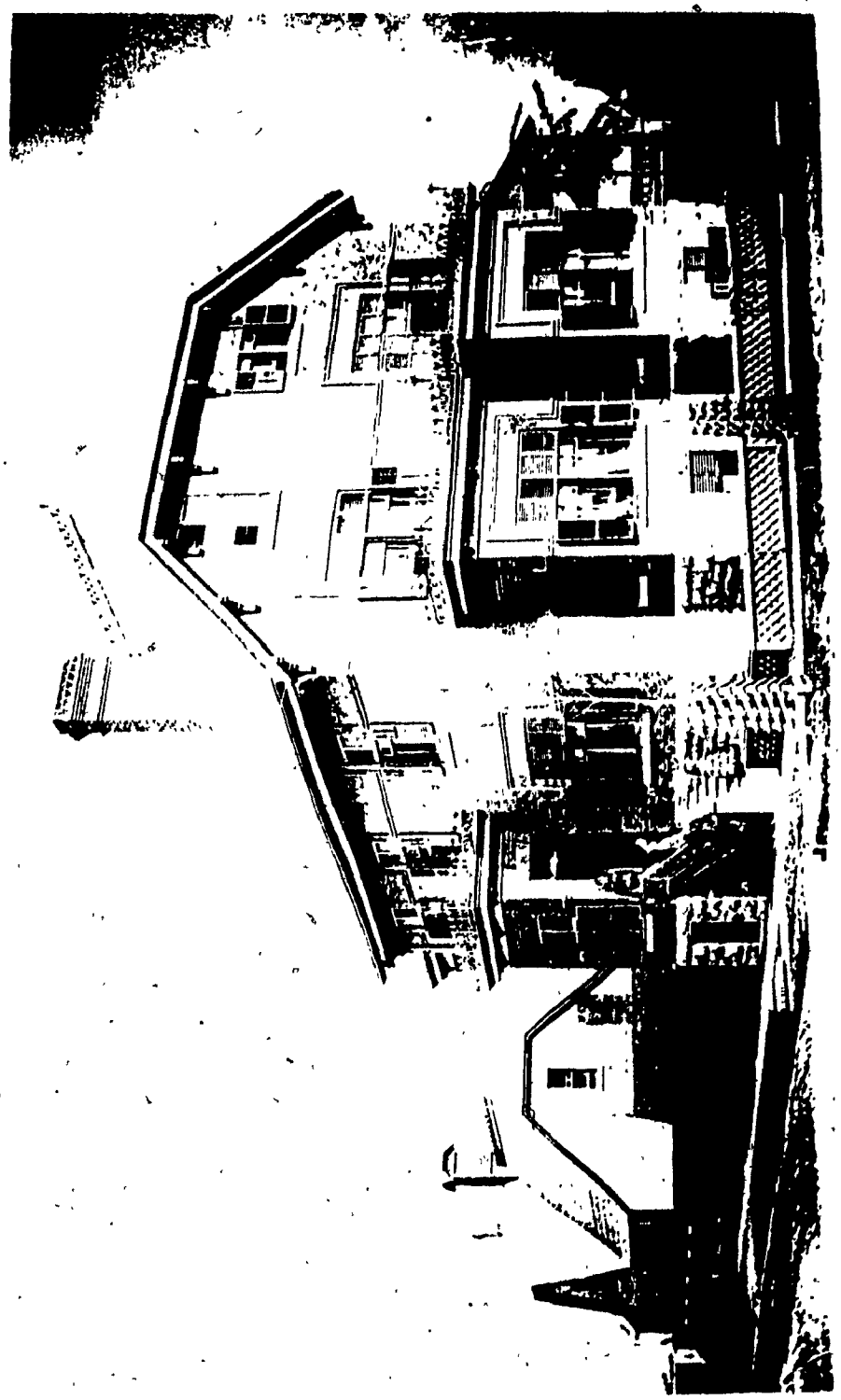

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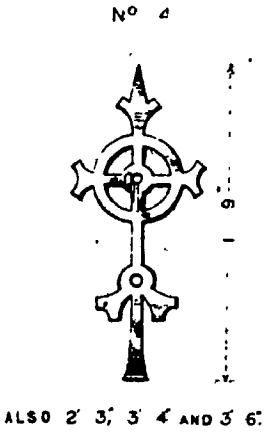
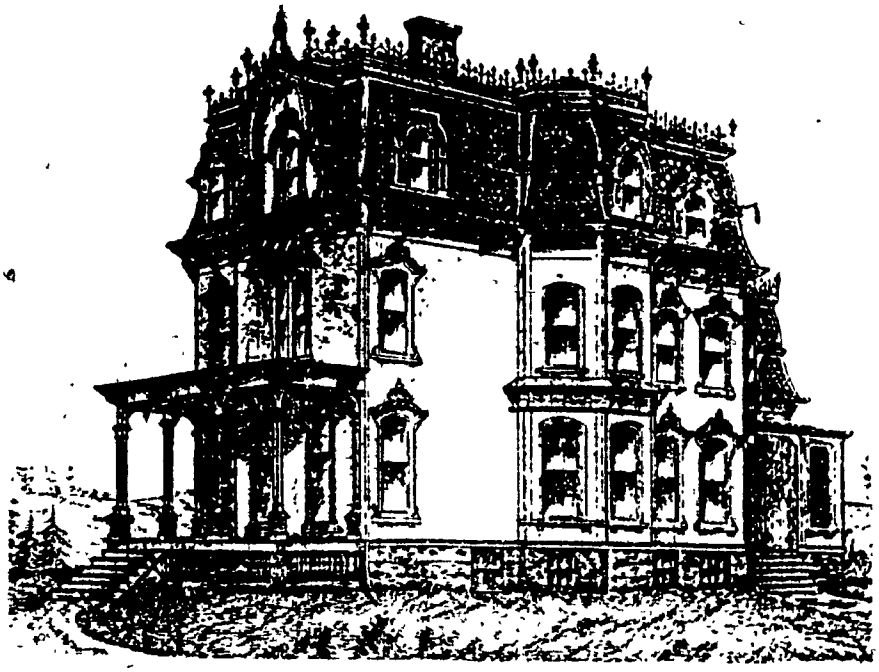


Fig. 100.

Fig. 101.

Fig. 102.



SIDE ELEVATION.

Fig. 103.

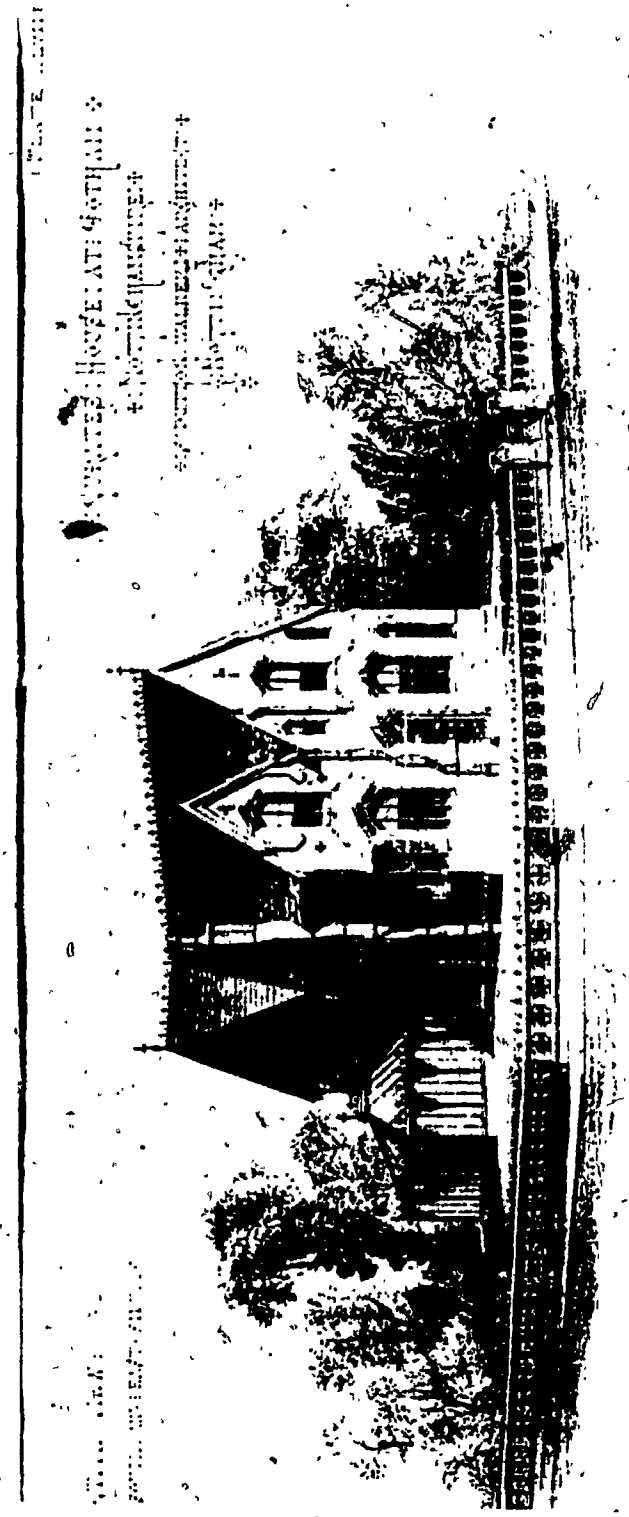
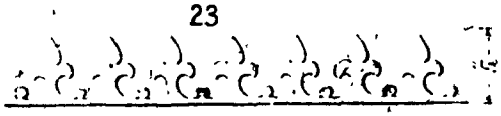


Fig. 104.

20

23



26

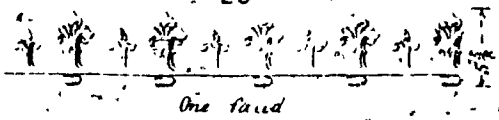
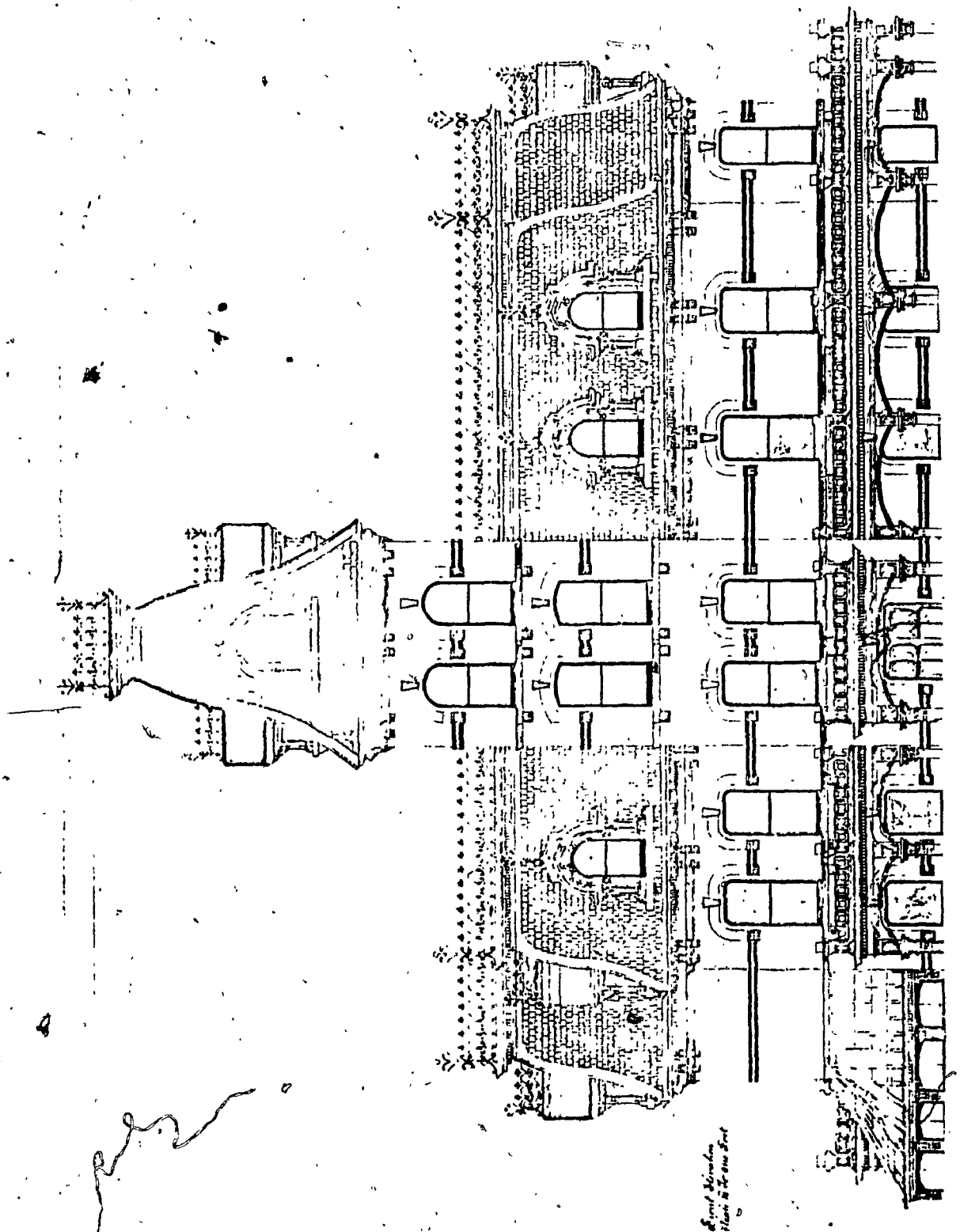


Fig. 105.

Fig. 106.

Fig. 107.



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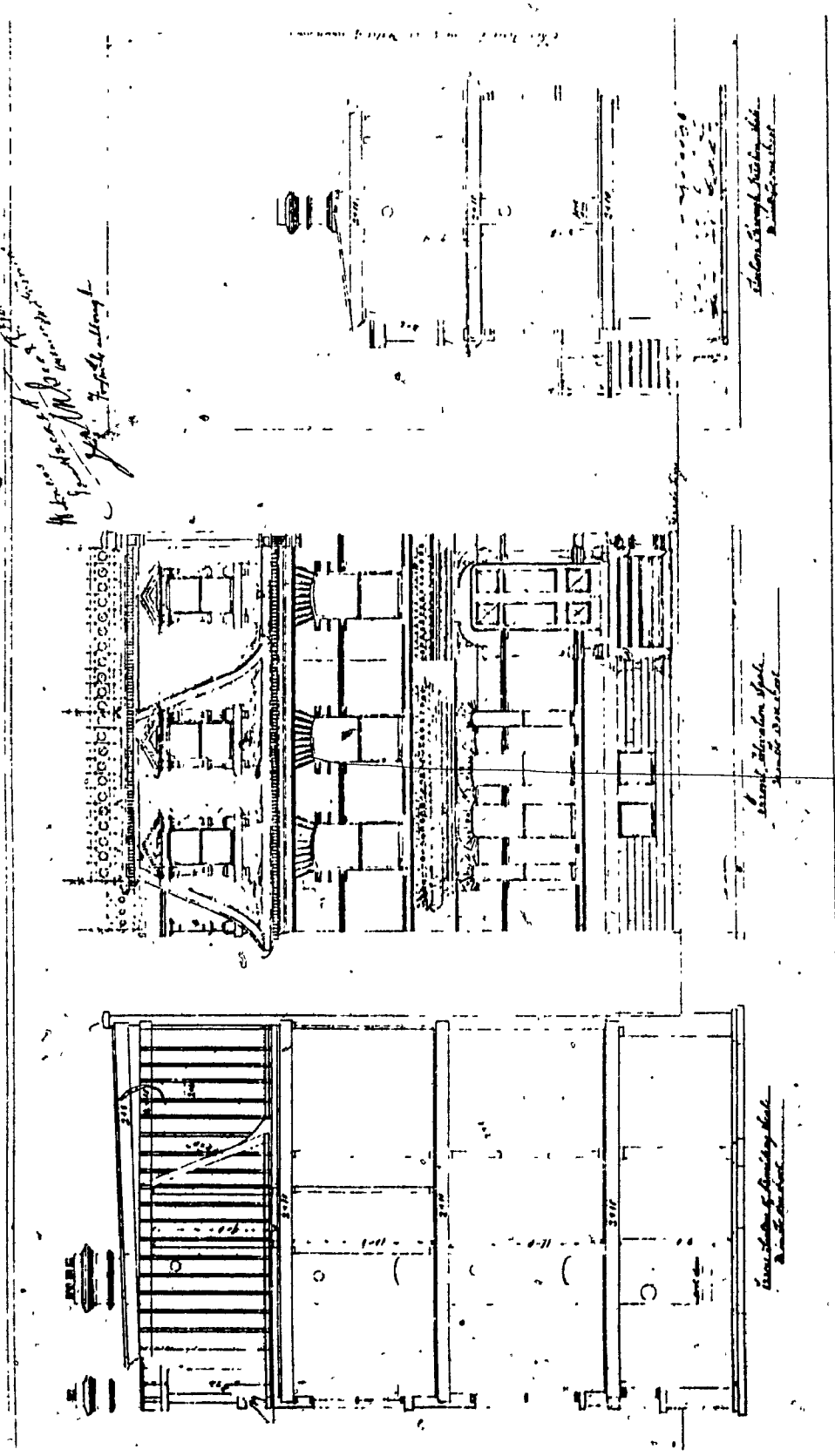
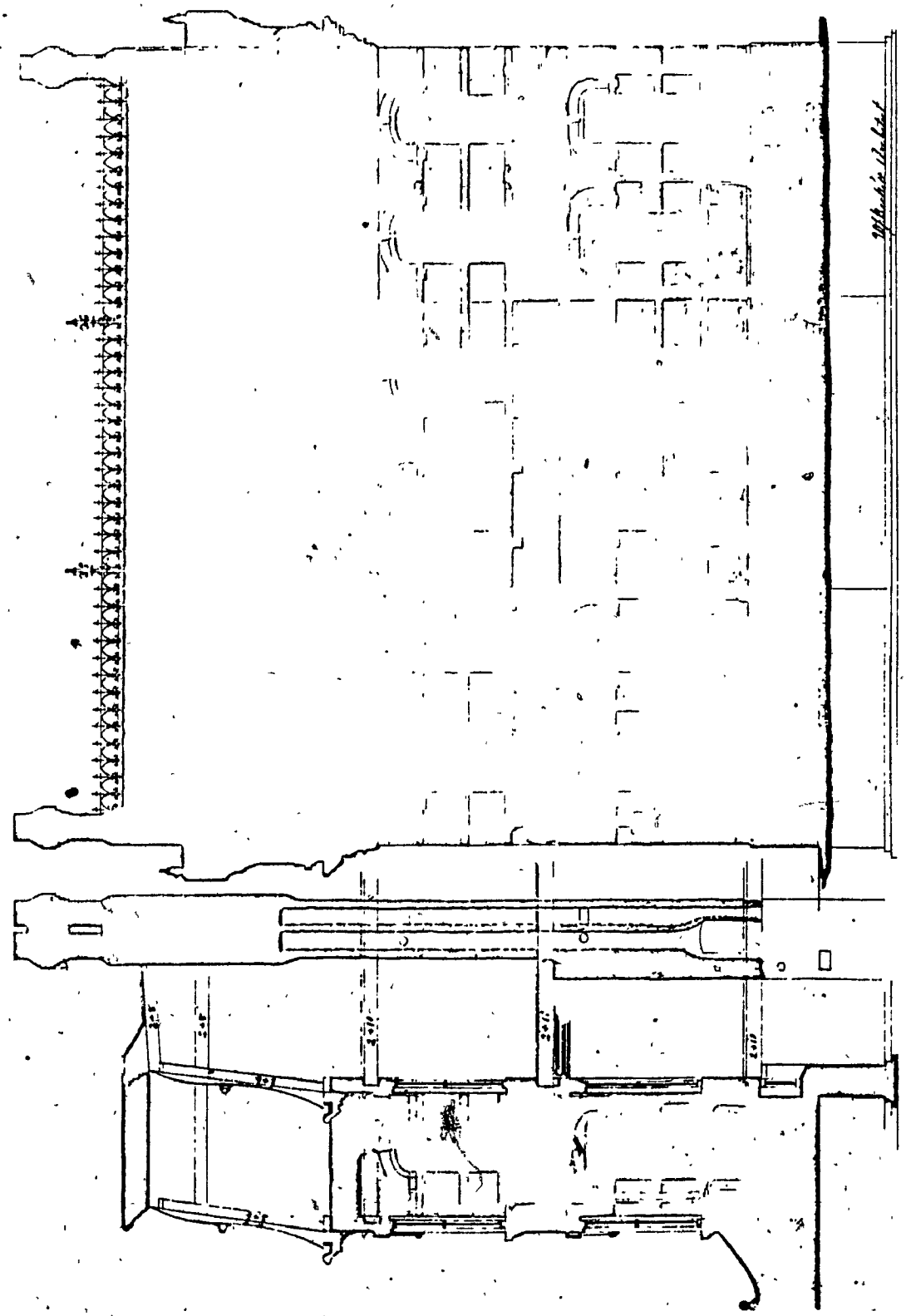


Fig. 109.



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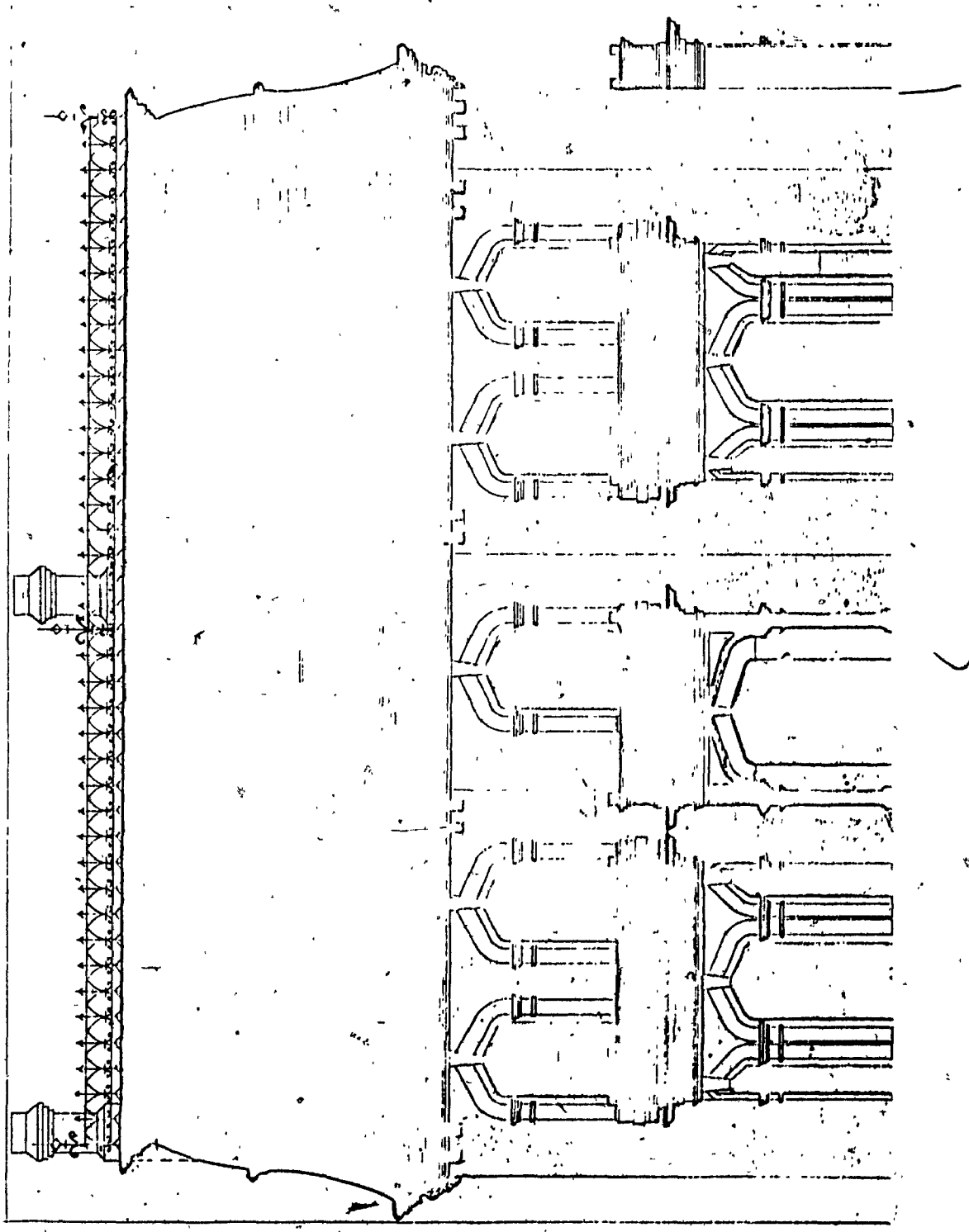

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Appendices

Appendix I

This is a catalogue of the founders, foundries and ironworkers active in the Ottawa area during the latter half of the Nineteenth century.. Most were found in the City of Ottawa Directories from 1861-1899, which was the primary source for this list.

OTTAWA AREA

FOUNDERS AND FOUNDRIES

NAME: Almonte Iron Works

OWNER: Rosamond, Miller & Scott

DATES ACTIVE: 1873-74

LOCATION: Not Available (NA)

WHAT THEY DID: NA

NAME: A.H. Baldwin, 1891 Baldwin Iron Works

OWNER: A.H. Baldwin - 1891
Roe & Graham - 1891-94,
Graham - 1895-96
Roe & Graham - 1896-99
Roe - 1899

DATES ACTIVE: 1869-1872, 1887-1888, 1888-1896, 1897-1899

LOCATION: 96 Bridge,
52-56 Head (1891-92)
96 Bridge (1890-1947)

WHAT THEY DID: Iron Founders and mill machinists
Cast Iron Columns

OTTAWA AREA

FOUNDERS AND FOUNDRIES

NAME: Blasdell, T.M. or the City Foundry

OWNER: Blaidell, T.M.

DATES ACTIVE: 1848 - 1870's

LOCATION: Wellington Street near (n.) George, n. Bay

WHAT THEY DID: Iron Foundry
Steam engines and mill iron

NAME: Blasdell, N.S. & Co., also known as Victoria Foundry and machine shop

OWNER: N.S. Blasdell - 1850- ,1861-1882, 1886-1887
H. Merrill and J.M. Currier - 1883-1885, 1888-1899

DATES ACTIVE: 1861 to at least 1899

LOCATION: middle Victoria Island

WHAT THEY DID: Iron founders and machinists

OTTAWA AREA

FOUNDERS AND FOUNDRIES

NAME: Blyth and Kerr (successors to Charles Garth)

OWNER:

DATES ACTIVE: 1868-1874

LOCATION: 25 Rideau Street

WHAT THEY DID: Brass, Plumbers, gas and steam fitters
founders
Iron furniture and builders' castings

NAME: Boyer, Napoleon

OWNER: same

DATES ACTIVE: 1890-1893, 1897-1898

LOCATION: 284 Dalhousie Street

WHAT THEY DID: Tinsmith, plumber, galvanized iron worker

OTTAWA AREA

FOUNDERS AND FOUNDRIES

NAME: Bristol Iron Co.

OWNER: Charles Magee/Braithwaite & Donaldson 1897-1898

DATES ACTIVE: 1896-1897

LOCATION: 168 Canal West

WHAT THEY DID: NA

NAME: Butterworth & Co.

OWNER: NA

DATES ACTIVE: 1890 to at least 1899

LOCATION: 110 Sparks Street

WHAT THEY DID: Hardware, heating and plumbing foundry, iron foundry

OTTAWA AREA

FOUNDERS AND FOUNDRIES

NAME: Caledonian Foundry, formerly Patterson & Law

OWNER: Law Bros.

DATES ACTIVE: 1889-1899

LOCATION: New Edinburgh, Green Island

WHAT THEY DID: Iron founders

NAME: Chaudière Machine & Foundry Ltd.

OWNER: Roe & Graham?

DATES ACTIVE: 1896-1899....

LOCATION: 85-87 Duke

WHAT THEY DID: Mill, steam and water fitters, brass castings, beams, columns, light and heavy castings

OTTAWA AREA

FOUNDERS AND FOUNDRIES

NAME: Dominion Boiler & Bridge Works

OWNER: Jenks & Co.

DATES ACTIVE: 1876

LOCATION: 187 Bank Street

WHAT THEY DID: Marine and stationery boilers, sheet iron work

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NAME: Douglas & Haines

OWNER:

DATES ACTIVE: 1890-

LOCATION: 113 Bank Street

WHAT THEY DID: Galvanized iron works, cornices, window caps, metallic ceilings.

OTTAWA AREA

FOUNDERS AND FOUNDRIES

NAME: Esmonde Bros. - 1889 Esmonde & Douglas/ Ottawa Cornice Works

OWNER: J.W. Esmonde

DATES ACTIVE: 1864?- 1870's? 1880's?

LOCATION: Sparks Street

WHAT THEY DID: Hardware store and suppliers of iron tools, stoves etc. Tin, iron, copper sellers, manufacturers of galvanized iron.

NAME: Esmonde & Douglas/Ottawa Cornice Works (formerly Esmonde Bros?)

OWNER: James W. Esmonde & Jos. R. Douglas
Douglas & Haines - 1890-1892
Douglas Bros. - 1893-1896

DATES ACTIVE: 1889-1896

LOCATION: 160-164 Bank Street
1234 Wellington - 1890
113 Bank - 1891

WHAT THEY DID: Hardware store and manufacturers of galvanized iron cornices and window caps, galvanized iron workers, roofers, also house furnishings

OTTAWA AREA

FOUNDERS AND FOUNDRIES

NAME: Garth & Co.
note: succeeded by Blyth & Kerr

OWNER: George Glackmeyer - 1861-1862 then in hands of Charles Garth Architect

DATES ACTIVE: 1861-1867

LOCATION: 25 Rideau Street opposite Cunningham, Barclay & Lindsay's Store

WHAT THEY DID: Steam fitters, plumbers, gas fitters

NAME: J.W. Gedes, Ottawa Stove Co?- 1898-1899

OWNER: J.W. Gedes and William J. Campbell

DATES ACTIVE: 1895-1899

LOCATION: 482 Maria
341 Gloucester Street - 1897
341 Sparks?

WHAT THEY DID: Boiler maker and iron founder, manufacturer of iron and brass castings, plumbers and steam fitters, supplies, stove repairs, fire pots and backs, special castings made on short notice.

OTTAWA AREA

FOUNDERS AND FOUNDRIES

NAME: Hay, R.G.

OWNER:

DATES ACTIVE: 1891-92

LOCATION: 228 Sparks Street

WHAT THEY DID: Furnaces, galvanized iron worker and tinware

NAME: Thomas Isaac

OWNER: same

DATES ACTIVE: 1861-1867

LOCATION: Sparks Street and Metcalfe

WHAT THEY DID: Furnishing iron monger and general dealer in iron (merchant).

OTTAWA AREA

FOUNDERS AND FOUNDRIES

NAME: Johnson, F.G. & Co.

OWNER: 1895-1896

DATES ACTIVE: NA

LOCATION: 533 Sussex Street

WHAT THEY DID: galvanized iron work

NAME: Thomas Lawson

OWNER: same

DATES ACTIVE: 1888 until at least 1899

LOCATION: 39 George Street
Queen and Lyon - 1889
120 Lyon Street - 1890

WHAT THEY DID: Iron founder, iron foundry.

OTTAWA AREA

FOUNDERS AND FOUNDRIES

NAME: William Mitford

OWNER: same

DATES ACTIVE: 1866-1871

LOCATION: corner of Wellington and O'Connor
corner of Wellington and Bank - 1868
Hull - across from E.B. Eddy - 1869

WHAT THEY DID: Ornamental iron worker, blacksmith.

NAME: McCall & Edwards?

OWNER: NA

DATES ACTIVE: 1895-1896

LOCATION: NA

WHAT THEY DID: Iron Founders?

OTTAWA AREA

FOUNDERS AND FOUNDRIES

NAME: McEwan & Son

OWNER: George McEwan

DATES ACTIVE: 1869-1870

LOCATION: Between Rideau and John Streets

WHAT THEY DID: Tin, sheet iron and copperware manufacturers

NAME: John (McFarlane & Bros.)

OWNER: same
McFarlane & Co.? - 1886

DATES ACTIVE: 1874-1890
1891 until at least 1899

LOCATION: 115-117 Bank Street, east side
115 Sparks Street
115 Bank

WHAT THEY DID: Iron founder

OTTAWA AREA

FOUNDERS AND FOUNDRIES

NAME: McRae & Co.

OWNER:

DATES ACTIVE: 1890-1891
1892-1893

LOCATION: 16 Metcalfe

WHAT THEY DID: Coal, pig iron, drain pipes, etc.

NAME: Ottawa Brass Foundry

OWNER: Theodore Frederick

DATES ACTIVE: 1873-1874

LOCATION: 60 Rideau Street

WHAT THEY DID: Manufacturing in all kinds of work including iron

OTTAWA AREA

FOUNDERS AND FOUNDRIES

NAME: Ottawa Foundry

OWNER: J. Wilson, A. Lacour, J. Kerr,
Francis McDougall - 1863
H. Masson - 1869
McDougall & Masson - 1871

DATES ACTIVE: 1850?-1873

LOCATION: George Street

WHAT THEY DID: Iron and brass founders, castings and iron works for buildings, general blacksmiths

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NAME: Ottawa Furnace and Foundry? iron?

OWNER: NA

DATES ACTIVE: 1899?

LOCATION: 343 Gloucester Street

WHAT THEY DID: NA

OTTAWA AREA

FOUNDERS AND FOUNDRIES

NAME: Ottawa Marble & Granite Works

OWNER: William Sommerville

DATES ACTIVE: 1877-1878

LOCATION: 188 Rideau Street

WHAT THEY DID: Fencing for cemetary lots and private residences from celebrated makers Ives & Allan, Montreal - order by mail; posts, bars and chains

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NAME: Paterson & Law aka Caledonian Foudnry 1889

OWNER: Mathew Patterson and ? Law
Law Bros. - 1889

DATES ACTIVE: 1874-1878
1881 to at least 1899

LOCATION: New Edinburgh, Green Island

WHAT THEY DID: Iron foundry, mill machinery, etc.

OTTAWA AREA

FOUNDERS AND FOUNDRIES

NAME: Patterson & Law

OWNER: Ad from The Ottawa Journal, Oct. 13, 1888

The firm of iron founders in New Edinburgh known as Patterson & law have dissolved partnership. The business in future will be conducted by Messrs. Law & Co.

DATES ACTIVE:

LOCATION:

WHAT THEY DID:

NAME: Perkins Bros. 1888
G.W. Perkins became Chaudière Machine & Foundry

OWNER: Perkins, G.W.then Roe & Graham 1896-1899?

DATES ACTIVE: 1876, 1895-1896

LOCATION: 87 Duke

WHAT THEY DID: Founder and machinists

OTTAWA AREA

FOUNDERS AND FOUNDRIES

NAME: Perkins Foundry & Machine

OWNER: E.L. Perkins and then in 1897, Perkins, A.E.

DATES ACTIVE: 1840 to at least 1899

LOCATION: Sparks between Hugh and Wellington &, Ward Market
Sparks - between Kent and Sally - 1868
307-308 Sparks Street - 1874
305 Sparks Street - 1877
307 Sparks Street - 1893

WHAT THEY DID: Foundry and machine shops, steam engines and boilers

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NAME: Perry, James

OWNER: same

DATES ACTIVE: 1864-1865

LOCATION: Nelson - between Rideau and Parry

WHAT THEY DID: Engineer, machinist and general iron worker

OTTAWA AREA

FOUNDERS AND FOUNDRIES

NAME:	Rodden & Co.
OWNER:	Richard S. Rodden, agent for Rodden & Co. Montreal (Rodden & Clendenning)
DATES ACTIVE:	1861-1865
LOCATION:	Rideau Street - near Sappers' Bridge
WHAT THEY DID:	Hardware, stove and iron furniture, dealers in various hardware and casting

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NAME:	Seeper, Landon & Co.
OWNER:	same?
DATES ACTIVE:	1874-1875
LOCATION:	Smith Falls, Mill Street (outside Ottawa)
WHAT THEY DID:	Iron founders and machinists, agricultural implements

OTTAWA AREA

FOUNDERS AND FOUNDRIES

NAME: J.R. Smith/The J.R. Smith Iron Works

OWNER: same

DATES ACTIVE: 1873-1899

LOCATION: 48 Besserer

WHAT THEY DID: Blacksmiths and iron fencing manufacturer, windowguards, ornamental iron works, pipe or chain, stable fittings.

NAME: Skinner, J.A.

OWNER: same

DATES ACTIVE: 1875?

LOCATION: St. Paul Street (near St. Laurence Hotel)

WHAT THEY DID: Ad in Ottawa Citizen, May 5, 1875
Plain and ornamental iron worker
Vault doors, iron shutters, railings, crestings and general iron work for building supplied.
Coffee mills re-cut and warranted.

OTTAWA AREA

FOUNDERS AND FOUNDRIES

NAME: Vulcan Iron Works

OWNER: Alexander Fleck (of Montreal) –
M.W. Merrill (general manager and occasional owner)
Alexander Fleck Jr., & ? Stewart - 1889

DATES ACTIVE: 1869-1870 - at least until 1899

LOCATION: 247 Wellington Street - 1877
418 Wellington Street - 1879
Wellington Street - 1879
424 Wellington (Stuart and Fleck) 1881-1889
426 Wellington Street - 1893

WHAT THEY DID: Mill machinery, decorative iron work, railway work

~~Ad from the Ottawa Citizen~~
Nov. 26, 1880

To Architects - Architects and builders would do well to call and see patterns of columns and ornamental castings for buildings at the Vulcan Iron Works, Wellington St. Messrs. Campbell and McBridge have leased the above works and intend to run the same in connection with their Boiler Works on Maria Street.

Appendix II

CANADA.

CATALOGUE

DE LA

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  Regnes de Philippe III, a Louis XIII
- " III. Règne de Louis XV.
  Campagnes de 1792 à 1795
  ——— de 1796 à 1799
  Règne de Napoléon
  Restauration, et regne de Louis Philippe
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Brooks, S. H. Modern Architecture: being a series of designs for shop elevations, shop fronts, buildings adapted for towns, gentlemen's demesnes, for labourer's cottages, &c.; with specifications, estimates, &c. Folio. London, 1852.

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"To construct a house of a material at once light, hard and tough, a house that might be put up, or taken down, with almost the rapidity of a tent, by any labourer such has been the aim of the Patentee of the Water proof Papier-Mâché Composition."—PREFACE.

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Allen, C. B. On Cottage Building, on improving the dwellings of the labouring classes; with designs, also, for a higher class. 12mo. London, 1854. *Weale's Series,* bound with, "Power of Water."

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Tredgold, Thomas The principles of Warming and Ventilating Public buildings, Dwelling-houses, Manufactories, Hospitals, Hot-houses, Conservatories, &c., and of constructing Fire-places, Boilers, Steam-apparatus, Grates, and Drying-rooms; with remarks on the nature of Heat and Light, &c. Third edition, by T. Bramah, comprising his observations on heating by means of Warm water, with descriptions of Apparatus. 8vo. London, 1836.

Hood, Charles A treatise on Warming buildings by hot water; and an inquiry into the laws of radiant and conducted Heat: Remarks on Ventilation, and on various methods of artificial Heat, and their effects on Animal and Vegetable physiology. 8vo. London, 1837.

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Vide, also, Brown's Architecture, ante p. 701

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Berthault-Ducreux. Mortiers des ciments romains. 8vo. Paris, 1833.

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Steinitz, Francis. The Ship, its origin and progress;—being a general history from its first invention to the latest improvements, forming a complete account of the Naval Events of the Ancients, the middle ages, and the modern epochs, to the close of 1848: including the state of the Navies of all nations; episodes, discoveries; Colonization and Commerce; a complete description of every kind of Vessel: with plates representing the Ships of all kinds and times, Flags, Naval Battles, &c. 4to. London, 1849.

Fincham, John. A history of Naval Architecture: to which is prefixed, an introductory dissertation on the application of Mathematical Science to the Art of Naval construction; with 58 plates. 8vo. London, 1851.

Vide, also, Beaufoy's nautical and hydraulic Experiments, toward the improvement of Naval Architecture, in Encyclopædia.

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Fishbourne, E. G. Lectures on Naval Architecture, being the substance of those delivered at the United Service Institution. 8vo. London, 1846.

Peake, J. Of Naval Architecture, the science and its application (copies of the first and second editions.) Kipping, R. On Masting, Mast-making and Rigging of Ships, 1856. Bland, W. On the form of Ships and Boats, 1852. All bound in 1 vol. 12mo. *Weale's Series.*

Griffiths, J. W. On Marine and Naval Architecture, or theory and practice blended in Ship Building, with more than 50 Engravings. Fourth edition. 4to. New York, 1854.

———— The Ship-Builder's Manual and Nautical Referee, with Tables and Engravings. 2 vols. Small 4to. New York, 1853.

Falconer, William. A new universal Dictionary of the Marine, of the technical Terms and Phrases, usually employed in the construction, equipment, machinery, and Military as well as Naval operations of Ships: with parts of Astronomy and Navigation, useful to practical Navigators, a variety of modern designs of Shipping, separate views of Masts, Yards, Sails, and Rigging, with a Vocabulary of French Sea phrases and Terms of Art. now modernized and much enlarged, by William Burney. 4to. London, 1815.

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Murray, Robert. On Marine Engines and Steam Vessels, with Remarks on the screw and propelling power. 12mo. London, 1852. Vide *Weale's Series*, in 1 vol., with Armstrong on Steam Boilers.

Vide also Excursions for Tredgold, and other works on Marine Engines, and Boilers.

Bourne, John. On the Screw Propeller; with various suggestions of improvement. Second edition, revised. 4to. London, 1855.

Atherton, Charles. The capability of Steam Ships based on the mutual relations displacement, power, and speed, illustrated by Tables adapted for Mercantile reference. Second edition. 8vo. Woodwich. 1854.

An appendix has his remarks in favour of "a large Class of Steamers" as expressed at a Meeting of the Institution of Civil Engineers 15th November, 1853. His Memorial to that Institution on 17th December on same subject. "Tables shewing the enormous capability of large Ships," with schemes. Papers on the measurement of Ships Cargo and various scientific Data.

APPENDIX III

SCHEDULE OF PRICES.—(*Continued.*)

	Description.	Definition	Rate.	Mode of Measurement
	Smith and Ironfounder.		$ cts	
280	Cast iron work, not otherwise provided for, including all moulds, patterns, stopping and priming and fixing complete	Per cwt.	4 50	To be taken at net weight, 112lbs to the cwt
281	Ornamental cast iron work for balusters and newels to stair-cases including all moulds, patterns, stopping, priming and fixing complete, dowelling into stone steps and landings, leading in, and screws to handrails	do	6 00	do do
282	Wrought iron in crampe, including leading in when required	do	11 20	do do
283	Galvanized iron do do	do	16 00	do do
284	Wrought iron in bolts and straps, including fixing	do ...	14.00	do do
285	Wrought iron in saddle bars, stanchions and ornamental strap hinges, balusters, roof cresting, and other ornamental wrought iron work, including fixing complete and leading in when required, and screwing strap hinges to doors	do ...	28 00	do do
286	Wrought iron in doors finished and fixed complete, including frame, bolts and hinges, and priming	do ...	22 40	do do
287	Cast iron mouldings to do fixed complete, including stopping and priming	do	6 00	do do
288	Chubb's locks to iron doors fixed complete	Each. ...	25 00	
289	Iron spiral staircase as per specification, including steps, landings, risers, carriages, strings, newels, balusters, handrails and every thing fixed complete, including stopping and priming	Per step ...	15 00	
290	Wrought iron casements including frame, pivots and rack (to inside and and outside sash reckoned as one casement) fixed and fitted complete with all fastenings and priming	Each	7 00	This applies to casements in windows of Legislative Chambers.
291	Wrought iron skylights to boiler-house, including all screws, rivets, nails, rebates and mouldings, fixed complete, and 3 coats painting	Per cwt ..	45 00	Per cwt. of 112lbs
	Smith and Ironfounder.—(Con.)		$ cts	
292	Rolled iron joists laid complete	Per ton . .	115 00	To be calculated per ton of 2240 lbs. Price includes twice coating with paint or tar. No allowance to be made for any excess of bearing on walls beyond 9 inches as specified.
293	Wrought iron riveted plate girders fixed complete, including rivets and three coats painting	do ..	160 00	Per ton of 2240 lbs.
294	Grates for fireplaces	each	18 00	
295	Setting grates	do	2 00	
296	Boiler plate iron, water cisterns, riveted and fixed complete, including letting in and fixing pipes and taps	per cwt	16 80	Per cwt. of 112 lbs.

The strength of joists to be determined by the following table:

LENGTH OF BEARING.	DEPTH.	PROOF WEIGHT IN CENTRE TO EACH
All up to 10 feet	4 inches	12 cwt.
16 "	5 "	12 "
18 "	5½ "	14 "
14 "	7 "	20 "
23 "	8 "	28 "

The joists must bear the above proof-weights without deflection.

APPENDIX IV

SPECIFICATION.
B

Wrought and Cast Iron Work required to finish and complete the Ornamental Finish of Central Tower of Parliament Building, above the line of Deck, as shewn by Drawing accompanying this, and by model (scale one inch to one foot) now in Architect's Office, Department Public Works, at Ottawa.

The model shews sizes &c., of Iron and whether cast or wrought, and the manner of arrangement and putting together of parts, so far as can be done on such a small scale or exact methods to be adopted to be arranged before work is proceeded with, or when work is drawn out full size, which Contractor will have to do, for inspection and approval of person in charge

The mast to be of *wrought Iron*, best *English "Low moor"*, malleable Iron, ¼", ⅜" and ½" thick, divisions of the same to be in nearly equal lengths, but junctions made so that they will work with other parts, all holes to be counter-sunk, to be well and tightly rivetted and put together, at bottom to fit on wood mast, of 12" square stuff, chamfered to suit the octagon, and shouldered to suit, or blocked out to form a bed for Iron mast into which it will go.

The whole length to be put together in Tower and then hoisted vertically till in place, Guys &c., being provided to keep it so Great care to be taken to have it fixed plumb, to be built or put together in the very best manner, with [illegible] joints or otherwise, to approval. The lower portion to be as if flutes rivetted on flanged portion Provide and fix proper necking securely rivetted to main mast, and provided with lugs to attach suspension & curved braces to, these to be fastened with bolts or nuts so as to fix the whole easily. The apex or finial to be as shown Provide and fix at top of mast a brass wheel with brass turned bearings, slightly larger than mast, and fixed in it with strong brass wire cord leading to and from deck, with a few yards to spare. The working parts to be so arranged that snow and ice will not affect its proper working.

All foliated portions to be cut to patterns or drawings that will be furnished, or drawn out full size, and be worked exactly in accordance therewith

At bottom of mast, a Base to be rivetted on, so as to throw water, say 4 inches clear of it all round

At bottom of Segmental Iron rim round the whole an inch square Bar with proper shoulders [illegible] and with six ½" bolts to fasten the three together, a shoulder to be cast on uprights to station this vertically, and a groove made in them for the same purpose Provide for two extra bolts to each standard to fix same

Standards to be of Cast Iron of the best quality, clean and sharp at all arrises and mouldings, the bases forming capitals to be cast separate [illegible] and or bolted on, proper provision to be made for wrought Iron finial work at Base Iron Bar to connect standards and also to slip in or fasten Cast Iron railing to The quality and not thickness of metal is what is required

[illegible] to be cast in sections with junctions so arranged as [illegible] If possible so arranged as not to require any vertical support [illegible] These standards to be so arranged that they will bear [illegible] with good Base, so as to allow of Bolts of which there will be [illegible] going through bead plate of framing and on to side of angle [illegible] to there screwed in and spiked. Floor boards can then be fixed around [illegible] plain loose Base or Plinth having previously been temporarily fastened up [illegible] in to the lead. A cast iron necking in two sections to be then fixed [illegible] throw water off.

All necessary Bolts for fixing and securing same to be provided, also every [illegible] necessary to make work complete. Great care to be taken that water does [illegible] not rust it, if so it will have to be scraped

The whole to be painted 3 coats metallic paint, done as described in Carpenter's Portion, and then have two coats of Royal Blue, and varnished twice with best Copal varnish. Portions tinted or colored yellow on model to be gilt, done with the very best quality of Gold, imported specially for the purpose, and then varnished twice with best Copal varnish.

The Contractor to note in Carpenter's portion of Specification what has to be done providing for hoisting &c., in shape of nickling &c., and he will be bound equally as well as Carpenter in all conditions and requirements mentioned and referred to so far as regards injury to life, or materials or present work; his attention is thus drawn to it to save any after dispute.

Time for completion to be three weeks after date named in Carpenter and [illegible] portion of work.

Payments will be made thus: First [illegible] the materials for the work [illegible] the ground. Second, when the [illegible] ready for fixing—it having been [illegible] and put together (except the spindle [illegible] mast), on the ground and [illegible] the whole is completed to the satisfaction and approval of the [illegible] the Minister of Public Works, or any person appointed by him for that [illegible]

THOS. S. SCOTT,

[illegible] Architect, Dep. P. W.

APPENDIX V

and at Montreal on the 17th day of July 1876

SPECIFICATION

of the several Works and Materials required for Ornamental Lamp Standards and Lamps, for the PARLIAMENT GROUNDS, OTTAWA, according to Drawings prepared under instructions of the Honorable the Minister of Public Works, numbered from 1 to inclusive, and to such further detail drawings as will be hereafter given, and this Specification.

GENERAL CLAUSES.

The whole of the works herein specified are to be manufactured, delivered, and fixed by the Contractor, in perfect and complete order and condition on the Parliament Grounds, Ottawa and by such time or times as will be stipulated in contract, to be entered into.

All models are to be prepared by the Contractor at his own cost, and must be approved of by this Department before any casting is made from them. The models of fittings, patera, heads, and other ornamental portions, to be modelled by carver approved of by the Chief Architect. The models are to be considered the absolute property of the Department, and the Contractor shall deliver the same in good order to the Public Works Department, Ottawa, ("free of cost and charges") before he shall be entitled to final payment of contract amount. No castings to be retained by the Contractor, nor shall be manufactured, sold, or exposed for sale, any works cast from the said models, other than herein specified and contracted for, under a penalty of $500, which, in case of such manufacture, sale, or exposure for sale, shall be recoverable by the Department from the Contractor, by due process of law in any court of competent jurisdiction, adjacent to such place of manufacture, sale, or exposure for sale.

All castings and other work to be inspected and approved of by the Department in the rough state before being finished off or painted, and the Contractor shall duly notify the Department in writing, when work is ready for inspection; this to be in quantity, not in parts.

Should any portion of the work be damaged, cracked, chipped, or broken, during transit, delivery, before or during fixing, the Contractor to make new castings, &c., at his own expense.

The whole of the work is to be carried out in strict conformity to the several drawings, and no alterations whatever will be allowed unless first approved of in writing by the Chief Architect.

After inspection and approval, and before leaving the foundry or workshop, all work to be properly cleaned of scales, rust, &c., and then painted one coat of ivory black, mixed with best boiled linseed oil.

As the detail drawings are drawn on large paper which stretches or shrinks at every change of temperature, the Contractor to carefully follow the dimensions figured on the drawings and set out the work, so that all parts will correctly fit together when cast, due allowance being made in making the models for shrinkage in castings. All joints and connections, in each particular case will admit, to be turned, planed, or filed down, to true and perfect bearings; bolt holes, &c., to be slotted, and all joints arranged to allow of contraction and expansion; and in case any portion of the work should become cracked or broken by construction, or exposure, or otherwise defective within twelve months after completion of the works and acceptance of the same by the Department, then the Contractor shall at his own cost and charges make good any such cracked or broken portions to the satisfaction of the Honorable the Minister of Public Works. All joints to be put together with white lead, grummets of tow, rust joint, sheet lead, or rubber, as may be considered best for each particular joint.

All wrought iron to be Lawmoor. All cast iron to be best grey cast iron of approved brand either of English or American manufacture.

Contractors to take actual slopes, angles, shapes, and sizes of the several parts of stonework on which the works are to be fixed, and agree with Department Clerk of works as to slopes, &c., of stone bases, &c., which have yet to be made by the Department.

All cast and wrought iron work to be finished equally well on all faces, and wrought iron foliage, &c., to show same on both sides, castings must be free from flaws, sand holes, or any other defect. All arrises to be sharp. The wrought iron work must be equal to that of gates in front of Western Block, Departmental Buildings, as regards quality of work. All joints and connections must be so put together that water or snow will not remain to cause rust. The wrought iron work to be accurately flush riveted, screwed, planed, and put together and connected with cast work in the manner best suited for each particular case.

The several works being delivered on the Parliament Grounds, Ottawa, with all required nut and other bolts, &c., for fixing same to stone work,—the holdfasts to be of the several shapes shown, or as will be shown on details to be provided—these, the Contractor to send a competent foreman to put together and direct the fixing of the standards, &c., but the Department will supply all necessary workmen. The Lamp Standards to be so constructed that gas pipes, &c., can be easily taken out and removed. The Department will provide and fix all gas piping, nipples, &c. The Lamps to be painted, the Contractor paying all royalties, duty, &c. Lamps, or glass portions to be fixed on standards in such manner to the approved of by the Department, so as to be readily removable for cleaning. Contractor to furnish the Department with extra glass globes of each size as per number on general block plan; the number of lamp standards, and the several patterns and sizes required are shown on general drawing, No. 1, on one inch scale, drawing of lamps, wrought iron work to coloured light blue, cast iron work dark grey, stone work yellow, and glass light red.

All work to be subject to the final approval and certificate of the Chief Architect.

Signed,

THOS. S. SCOTT,

D. P. W.

OTTAWA, June, 1876.

SOURCES (APPENDICES)

APPENDIX I	See Bibliography under City of Ottawa Directories listing.
APPENDIX II	Library of Parliament Catalogue of the Library of Parliament,(Toronto: John Lovell, 1857), Architecture Section, p.p. 698-710.
APPENDIX III	PAC, Department of Public Works Contract,RG43, vol.2487, contract 2572, April 18, 1863., p.p. 626-627..
APPENDIX IV	See Chapter III, footnote 35.
APPENDIX V	See Chapter III, footnote 39.